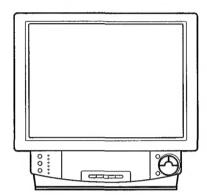
KV-13VM20 / 20VM20 RM-Y126

SERVICE MANUAL



US Model

KV-13VM20

Chassis No. SCC-H16A-A

KV-20VM20

Chassis No. SCC-H16B-A

Canadian Model

KV-13VM20

Chassis No. SCC-H15B-A

KV-20VM20

Chassis No. SCC-H15C-A

MODELS OF THE SAME SERIES

KV-13VM20

KV-20VM20

SPECIFICATIONS

Television system American TV standard, NTSC COLOR

Channel coverage

VHF: 2-13 UHF: 14-69 CABLE TV: 1-125

Picture tube

KV-13VM20 Microblack™ Trinitron® tube

13-inch picture measured diagonally 14-inch picture tube measured diagonally

KV-20VM20

Trinitron® Tube 20-inch picture measured diagonally 21-inch picture tube measured diagonally

Antenna 75Ω external antenna terminal for VHF/UHF F-TYPE

Input Video (phono jack): 1 Vp-p, 75-ohms

unbalanced negative sync

Audio (phono jack): 400 mVrms (100% modulation) Impedance: 47 kΩ, Monaural

Output Earphone Jack

Tape Speed SP: 33.35mm/sec

LP: 16.67mm/sec EP: 11.12mm/sec

Maximum

Recording/playback 9 hours in EP mode

Speaker output 6.5W x 1 Speaker Size

Audio frequency

response

50Hz-20kHz

6.6 x 4.1cm x 1

Power requirements 120V AC, 60Hz

KV-13VM20: 85W(Standby mode 5 W) Power consumption

KV-20VM20: 100W(Standby mode 7 W)

Fast-forward and

rewind time

Approx. 4min 30sec (T-120 Tape)

KV-13VM20: 151/2" x 165/8" x 15" Dimensions (w/h/d)

390 x 416 x 384 mm KV-20VM20: 207/8" x 201/8" x 19"

531 x 511 x 482 mm

Weight KV-13VM20:

Net: 14.65Kg (32. 3lbs) Gross: 16.65Kg (36.7lbs)

KV-20VM20:

Net: 28.3kg (62.4 lbs) Gross: 30Kg (66.1 lbs)

Supplied accessories Remote Commander RM-Y126 (1)

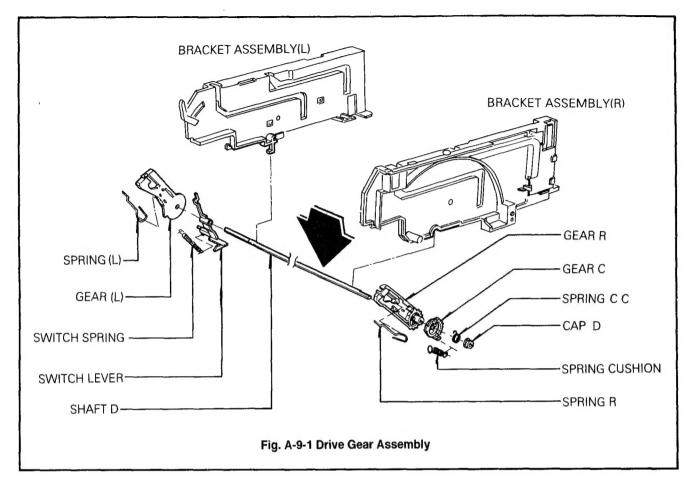
with 1 AA size (R6) battery

Antenna Adapter (1)

Design and specifications are subject to change without notice.

TRINITRON® COLOR VIDEO TV SONY





* NOTE

1) When reassembling, seat the projections of Gear R in the holes of Gear C when the projection of Gear R is aligned with the hole of Gear C and then keep the Gear C turned in the clockwise direction

9-6. Gear R(Fig. A-9-1)

1) Lift up the Gear R from the Shaft

9-7. Spring R(Fig. A-9-2)

1) Remove the Spring R by releasing Hooks.

* NOTE

1) When reassembling, be certain Spring R in the part(A) of Gear R

9-8. Gear L.(Fig. A-9-1)

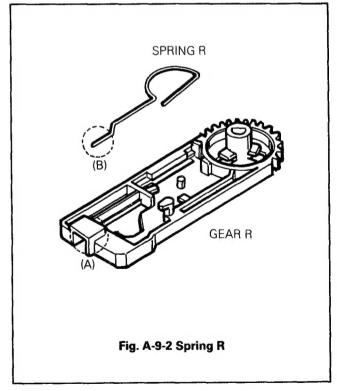
1) Remove the Gear L from the shaft

9-9. Spring L (Fig. A-9-2)

- 1) Remove the Spring L by releasing Hooks from the Gear
- * NOTE: (Refer to the Spring R Section)

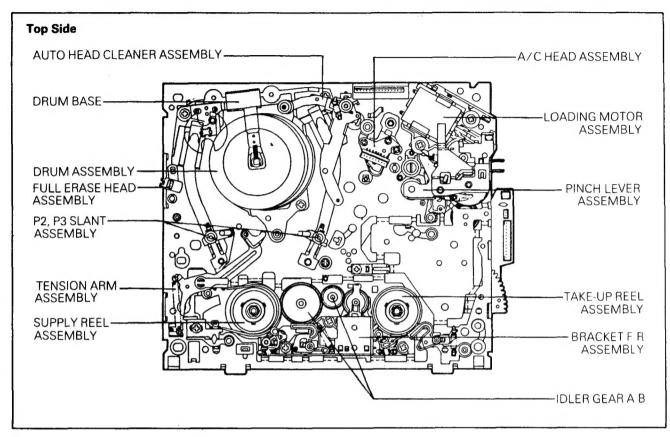
9-10. Switch Lever(Fig. A-9-1)

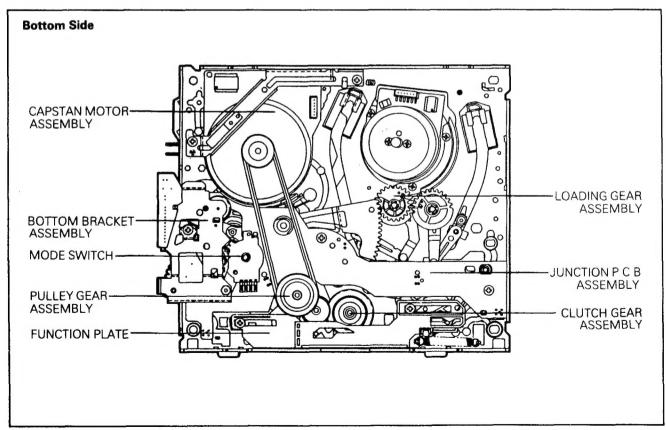
1) Remove the Switch Lever from the shaft



9-2. DECK MECHANISM

Deck Mechanism Parts Location



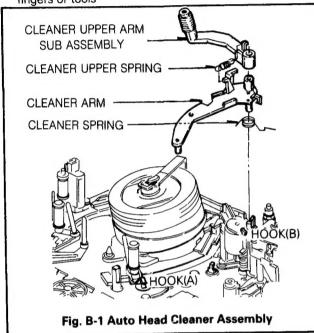


1. Auto Head Cleaner Assembly (Fig. B-1) (Optional Item)

- Remove the Cleaner Arm Assembly (Auto Head Cleaner Assembly) by pushing the Locking Tab (B) outward
- 2) Remove the Cleaner Upper Spring and then remove the Cleaner Upper Arm Sub Assembly
- 3) Remove the Cleaner Spring

* NOTE

 When reassembling, do not touch the Video Head Tip with fingers or tools

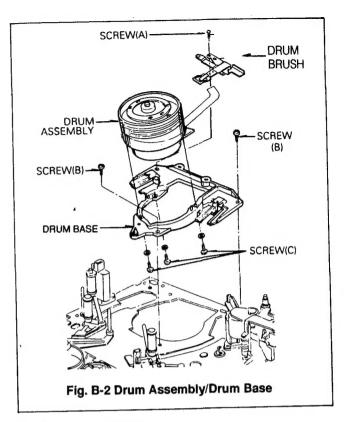


2. Drum Assembly and Drum Base(Fig. B-2)

- 1) Remove the Auto Head Cleaner Assembly (Option)
- 2) Unplug the connector with the Deck Mechanism Assembly turned over
- 3) Loosen the screw(A) and then lift up the Drum Brush
- 4) Remove two screws(B) and then lift up the Drum Assembly and Drum Base from the Deck Mechanism Assembly
- 5) Separate the Drum Assembly from the Drum Base by Loosening three screws(C) on the back of Drum Base.

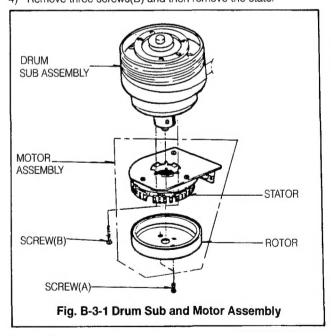
* NOTE

- 1) When disassembling and reassembling
- ① Do not touch the Video Head tip with fingers or tools (Give special attention to disassembling and reassembling of Auto Head Cleaner Assembly)
- ② After reinstalling the Drum Brush, the Drum Brush should be aligned with the center of vertical axis of Drum Assembly
- 3 After completing the reassembly, adjust the transportation system and the Servo P G



3. Drum Assembly

- 3-1. Drum Sub and Motor Assembly (Fig. B-3-1)
 - : New Type (No two screws and P.C.B on the Drum)
- 1) Remove the Drum Base from the Deck Mechanism Assembly.
- 2) Separate the Drum Assembly from the Drum Base
- 3) Remove two screws(A) and then remove the rotor
- A) Remove three screws(B) and then remove the stator



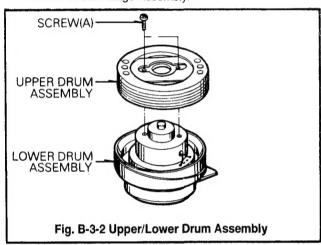
- 1) When disassembling and reassembling
- (1) Do not touch the Video Head Tip with fingers or tools.

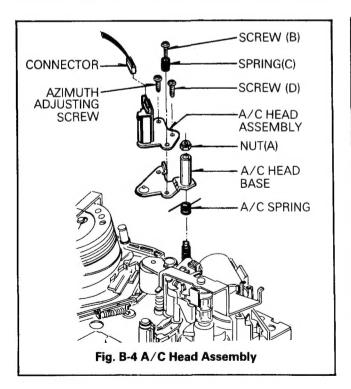
3-2. Upper and Lower Drum Assembly (Fig. B-3-2) Old Type (There are two screws and P.C.B on the Drum)

- Remove the Drum Assembly and Drum Base from the Deck Mechanism Assembly
- 2) Separate the Drum Assembly from the Drum Base.
- 3) Remove two screws(A)
- 4) Remove the PCB
- Separate the upper Drum Assembly from the Lower Drum Assembly.

* NOTE

- 1) When disassembling and reassembling
- ① Do not touch the Video Head Tip with fingers or tools
- ② Make sure that the color(white) marked on the P.C.B of the upper Drum should coincide with the color(Green) marked on the Flange Assembly.





4. A/C(Audio/Control) Head Assembly (Fig.B-4)

- 1) Unplug the connector
- Remove the Nut(A), and then lift up the A/C Head Assembly
- 3) Remove the Azimuth Adjusting Screw
- Remove two screws(B),(D) and then separate the A/C Head Assembly from the Base A/C Head Assembly.

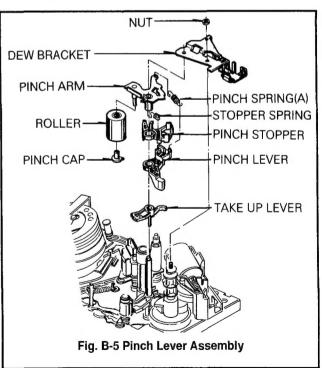
* NOTE

- 1) When disassembling
- First of all, release the spring A/C.
- 2 Do not touch the A/C Head Tip with fingers or tools
- 3 After reinstalling the Audio Control Head Assembly, adjust the Tilt, Azimuth and Height of A/C Head

5. Pinch Lever Assembly(Fig. B-5)

- 1) Remove one Nut, and then remove the Dew Bracket
- 2) Lift up Pinch Lever Assembly.
- 3) Remove the Pinch Spring, and remove the Pinch Lever
- 4) Remove the Stopper Spring and remove the Pinch Stopper by lifting it up when the Hook of Pinch Stopper is aligned with the hole of Pinch Arm while rotating the Pinch Stopper in the counterclockwise direction.
- 5) Remove the Pinch Cap, and then remove the Pinch Roller Assembly

- 1) When disassembling and reassembling
- (1) Be careful not to get any foreign substance on the Roller
- When disassembling the Pinch Cap, be careful not to damage the Pinch Arm

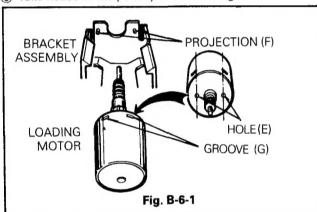


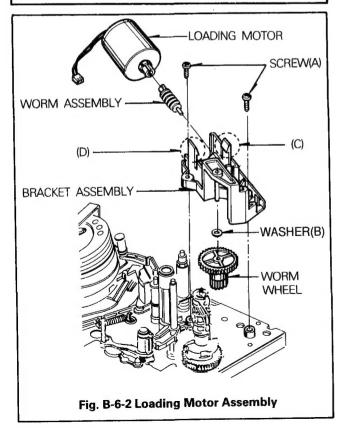
6. Loading Motor Assembly(Fig. B-6-1, B-6-2) 7. Take Up Lever(Fig. B-7)

- 1) Remove the Dew Bracket.
- 2) Unplug the connector from the Junction PCB Assembly
- 3) Remove two screws(A)
- 4) Remove the worm wheel by pushing it down
- 5) Remove the Loading Motor Assembly by pushing(C) and (D) outward
- 6) Remove the worm Gear Assembly from the Loading Motor Assembly by pushing it

* NOTE

- 1) When reassembling
- ① Make sure that the worm assembly is seated in the axis of Loading Motor
- ② Two grooves(G) of Loading Motor should be turned up and two projections(F) of Bracket Assembly should be seated in each at the two holes(E)(Fig B-6-1)
- (3) Take notice of the polarity of the Loading Motor

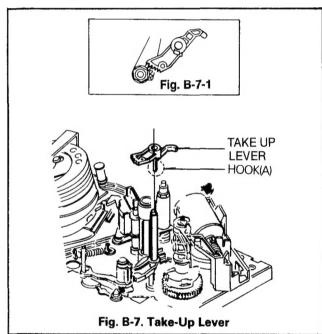




- 1) Remove the Loading Motor Assembly.
- 2) Remove the Dew Bracket(Fig. B-5).
- 3) Remove the Pinch Lever Assembly(Fig. B-5).
- Keep the Pinch Gear turned in the clockwise direction (180°).
- Remove the Take-Up Lever by pushing the hook(A) outward.

* NOTE

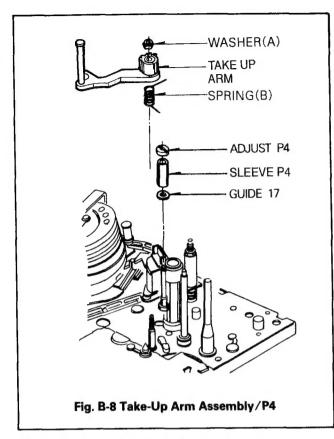
- 1) When disassembling and reassembling
- ① When disassembling the Take-Up Lever, be careful not to break the Hook(A).
- ② When reassemble the Take-Up Lever, align the appendant Gear of Lever Take-Up with the appendant Gear of Take-
- (3) Reassemble the Take-Up Lever completely by hooking
- (4) Be sure to replace together Take-Up Lever and Pinch
- Be sure to assemble Pinch Lever Assembly before operating.



8. Take Up Arm Assembly(Fig. B-8)

- 1) Remove the Loading Motor Assembly.
- 2) Remove the Dew Bracket, Pinch Gear, and the Take-Up Lever.
- Remove one Washer(A).
- Remove the Take-Up Arm Assembly by lifting it up.
- 5) Remove the spring(B).

- 1) When reassembling
- Align the Gear of Take-Up Arm with the Gear of Take-Up. Lever(Fig. B-7-1).

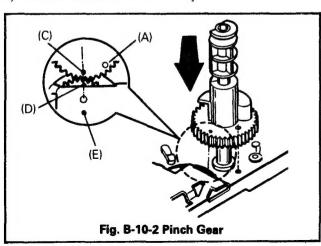


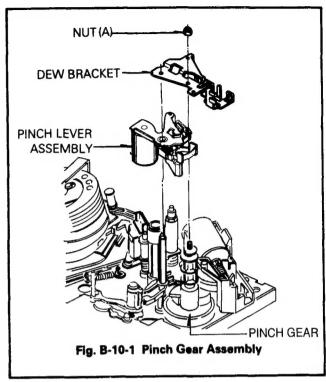
9. P4 Assembly(Fig. B-8)

- 1) Remove the Adjust P4
- 2) Remove the Sleeve P4.
- 3) Remove the Guide 17

10. Pinch Gear(Fig. B-10-1, B-10-2)

- 1) Remove the Loading Motor Assembly.
- Remove one Nut(A) and then remove the Dew Bracket (Fig. B-5).
- 3) Remove the Pinch Lever Assembly by lifting it up(Fig. B-5)
- 4) Keep the Pinch Gear turned in the clockwise direction (180°).
- Remove the Take-Up Lever by pushing the hook(A) outward(Fig. B-7).
- 6) Keep the Pinch Gear turned in the counterclockwise direction (180°).
- 7) Remove the Pinch Gear Assembly.





* NOTE

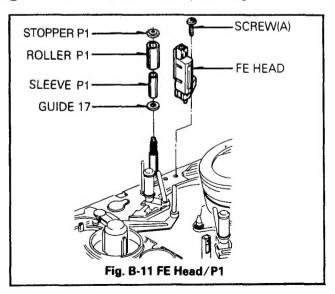
- 1) When reassembling, align the hole(A) of Pinch Gear with the hole of chassis, and the hole(C) of Pinch Gear with the groove(D) of the P C.Gear. Hole(E) of chassis should be aligned with the hole of P.C Gear.
- 2) Be sure to replace together Take-Up Lever and Pinch Gear.
- 3) Be sure to assemble Pinch Lever Assembly before operating.

11. FE(Full Erase) Head Assembly(Fig. B-11) (Optional Item)

- 1) Unplug the connector.
- 2) Remove one screw(A), and then remove the FE Head

NOTE

- 1) When disassembling and reassembling
- 1 Do not touch the Video Head Tip with fingers or tools



12. P1 Assembly(Fig. B-11)

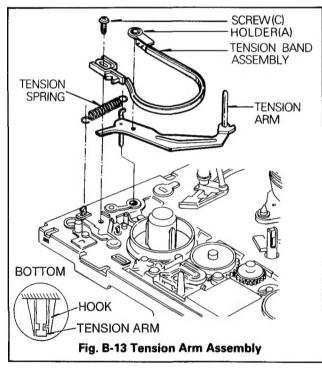
- 1) Remove the Stopper P1.
- 2) Remove the Roller P1.
- 3) Remove the Sleeve P1.
- 4) Remove the Guide 17.

13. Tension Arm Assembly(Fig. B-13)

- 1) Remove one screw(C).
- 2) Remove the Tension Spring
- Remove the Tension Arm Assembly by pushing hooks outward with the Deck Mechanism Assembly turned over.
- Remove the Tension Band Assembly from the Tension Arm by pushing Hooks of Holder(A)

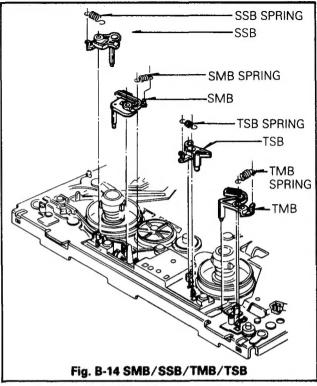
* NOTE

 When disasembling and reassembling, give special attention to the disassembling and reassembling of Tension Arm Assembly, because the Tension Band is interposed between the Supply Reel and the Soft Brake



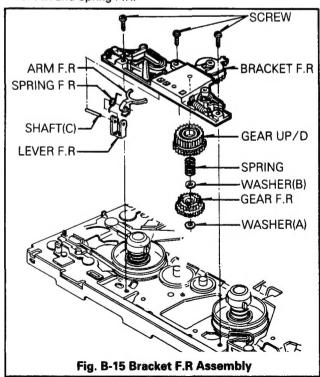
14. Supply Soft/Supply Main/Take-Up Soft/Take-Up Main Brake Assembly

- 1) Supply Soft Brake(SSB)
 - ① Remove the SSB Spring
 - ② Remove the SSB
- 2) Supply Main Brake(SMB)
 - Remove the SMB Spring
 - ② Remove the SMB
- 3) Take Up Soft Brake(TSB)
 - Remove the TSB Spring.
 - ② Remove the TSB.
- 4) Take-Up Main Brake(TMB)
 - ① Remove the TMB Spring.
 - ② Remove the TMB



Bracket F/R(FF/Rewind) Assembly (Fig. B-15)

- 1) Remove the TMB.
- 2) Remove the Washer(A), and then remove the Gear F.R.
- Remove three screws, and then remove Bracket F/R Assembly from the Deck Mechanism Assembly.
- 4) Remove the Washer(B), and spring Up/D, and then remove the Gear Up/D.
- 5) Remove the shaft(C), and then remove the Arm F.R, Lever F.R and Spring F.R.



16. Supply Reel Assembly(Fig. B-16)

- 1) Remove the Tension Band Assembly
- 2) Remove the Bracket F/R.
- Lift up the Supply Reel Assembly from the Deck Mechanism Assembly.

17. Take Up Reel Assembly(Fig. B-16)

- 1) Remove the TMB(Fig. B-14)
- 2) Lift up the Take-up Reel Assembly from the Deck Mechanism Assembly

* NOTE

- 1) When reassembling
- Make sure that the Supply and Take Up Reel are not exchanged.
- ② After reinstalling the Supply Reel Assembly, Adjust the Tension.

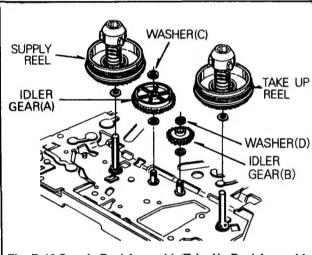


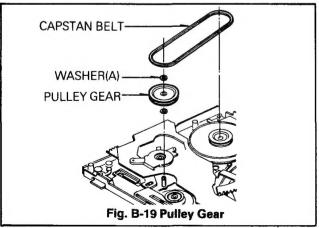
Fig. B-16 Supply Reel Assembly/Take-Up Reel Assembly

18. Idler Gear(A), (B)(Fig. B-16)

- After removing the Supply Reel and supply Main Brake Assembly, remove the washer(C) and then remove the Idler Gear(A).
- 2) Remove the Washer(D) and remove the Idler Gear(B)

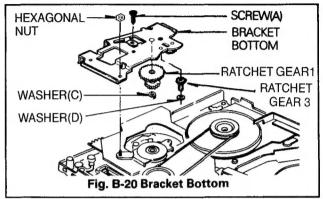
19. Pulley Gear Assembly (Fig. B-19)

- 1) Turn over the Deck Mechanism Assembly
- 2) Remove the Capstan Belt
- 3) Remove the Washer(A) and lift up the Pulley Gear



20. Bracket Bottom Assembly (Fig. B-20)

- 1) Remove one screw(A).
- Remove one Hexagonal Nut, and then lift up the Bracket Bottom Assembly.
- 3) Remove one Washer(C), and lift up the Ratchet Gear 1.
- 4) Remove the washer(D), and then remove Ratchet Gear 3 from the Bracket Bottom.

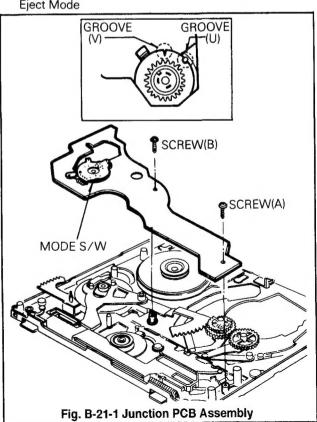


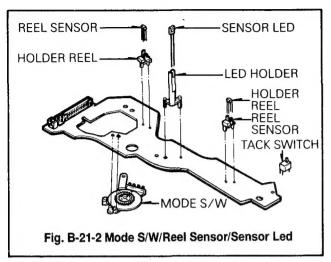
21. Junction PCB(Printed Circuit Board) Assembly(Fig. B-21-1)

- 1) Remove the Bracket Bottom Assembly.
- Remove two screws(A), (B) and then remove the Junction P.C.B Assembly.
- Remove the Mode Switch from the Junction P.C.B Assembly
- Remove the Reel Sensor, Sensor LEDS and each holder from the Junction P.C.B(Fig. B-21-2).

* NOTE

 When reassembling the Mode Switch, the groove(V) and (U) of Mode Switch should be at their original place in the Eject Mode



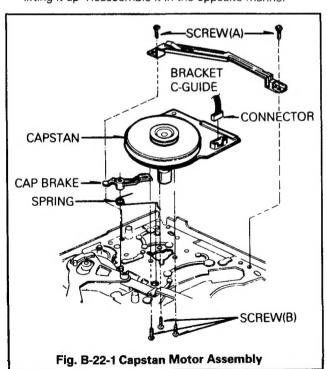


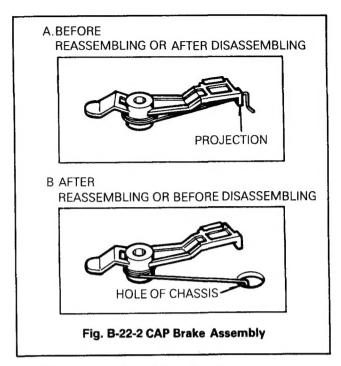
22. Capstan Motor and Brake Assembly (Fig. B-22-1)

- 1) Remove the Junction P C B Assembly
- Hook the end of Capstan Brake Spring to the projection of Capstan Brake and then remove the Capstan Brake Assembly by lifting it up (Fig B-22-2).
- Remove two Screws(A), and then remove the Bracket C-Guide
- 4) Remove the Connector
- 5) Remove three screws(B), and then remove the Capstan Motor Assembly from the Deck Mechanism Assembly

* NOTE

 When disassembling and reassembling, hook end of the spring on the projection of Cap-Brake and remove it by lifting it up Reassemble it in the opposite manner



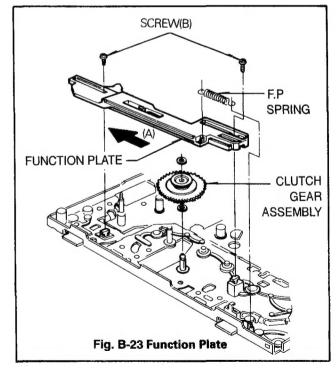


23. Function Plate(Fig. B-23)

- 1) Remove two screws(B) in Eject Mode.
- 2) Remove the Function Plate Spring
- 3) Push the Function Plate in the direction of arrow(A) and then lift it up.

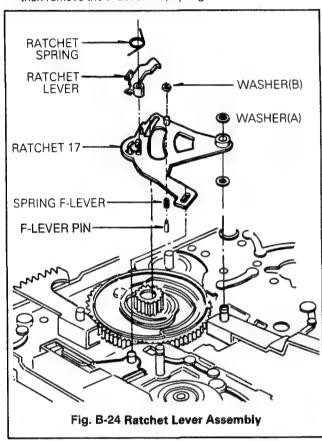
* NOTE

 When reassembling the groove of Lower part of Function Plate should be aligned with the shaft of Tension Lever Assembly (Fig. B-29)



24. Ratchet Lever Assembly(Fig. B-24)

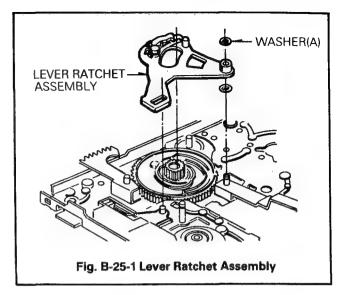
- 1) Remove the Function Plate
- 2) Remove the Junction P C B Assembly
- Remove the Washer(A) and then remove the Ratchet Lever Assembly.
- 4) Remove the Ratchet Spring
- 5) Remove the Ratchet Lever from the Ratchet 17 by lifting it up when the hook of it is aligned with the hole of Ratchet 17 while rotating it counterclockwise direction
- 6) Remove the Washer(B), and turn over the Ratchet 17 and then remove the F-Lever Pin, Spring F-Lever.

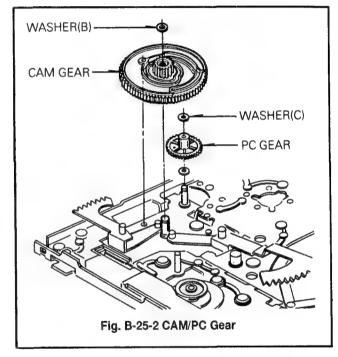


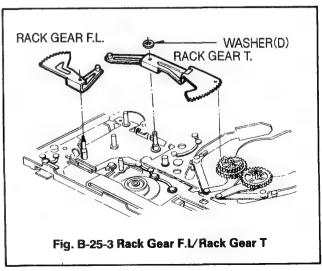
25. Cam Gear/Rack Gear T/Rack Gear FL(Fig. B-25-2)

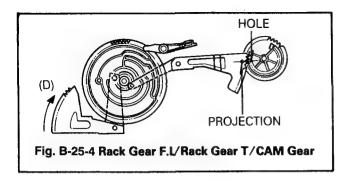
- Remove the washer(A) and remove the Ratchet Lever Assembly (Fig B-25-1)
- 2) Remove the washer(B), and then remove the Cam Gear (Fig. B-25-2)
- 3) Remove the Rack Gear F L (Fig B-25-3)
- 4) Remove the Washer(D).(Fig. B-25-3).
- 5) Remove the Rack Gear T.(Fig. B-25-3).

- 1) When reassembling
- Align the Projection of Rack Gear T with the hole of Loading Gear
- (2) Drive the Rack Gear F.L in the direction of arrow(D)
- ③ Hole of Cam should be aligned with the hole of chassis, and the groove(■) of Cam Gear should be aligned with the hole of PC Gear (Fig B-26)







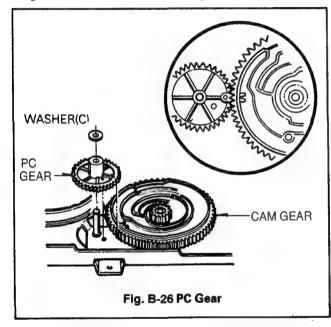


26. PC Gear(Fig. B-26)

- 1) Remove the washer(C).
- 2) Remove the P C Gear by lifting it up.

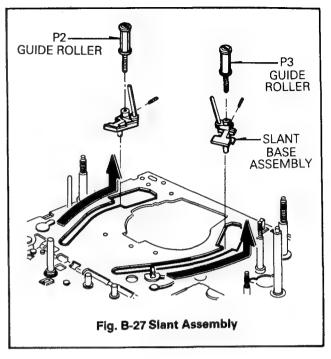
* NOTE

- 1) When reassembling
- The Groove of PC Gear should be aligned with the groove(V) of Cam Gear, and another hole of it should be aligned with the hole of chassis (Fig B-26)



27. P2 and P3 Slant Assembly (Fig. B-27)

- After finishing the disassembly of Drum Assembly, remove the P2 and P3 Slant Assembly by turning the Loading Gear(R) in the clockwise direction (Loading direction)
- 2) Loosen the set screws
- 3) Remove the Roller Guide from the Slant Base.



* NOTE

- 1) When disassembling and reassembling
- ① Use a Hexagonal wrench to remove set screw.
- ② Take notice that the P2 and P3 Slant Assembly should not be changed from their original place.

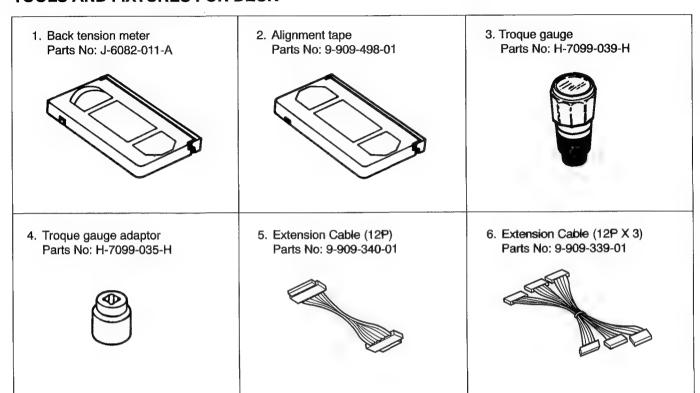
28. Loading Gear Assembly(L),(R) (Fig. B-28)

- 1) Remove the Cam Gear, Rack-T
- 2) Remove the P2 and P3 Slant Assembly by turning the Loading Gear(L),(R) in the Loading direction
- Lift up the Loading Gear Assembly(L),(R) from the Deck Mechanism Assembly
- 4) Remove the Spring Load(L),(R).
- 5) Separate the Loading Gear(L), (R) from Arm Load(L), (R).

- 1) When reassembling
- Make sure that the Loading Gear(L) and (R) should not be changed from their original place.
- ② Align the groove of Loading Gear(L),(O) with the groove of Gear(R),(O)

SECTION 10 ADJUSTMENT

TOOLS AND FIXTURES FOR DECK



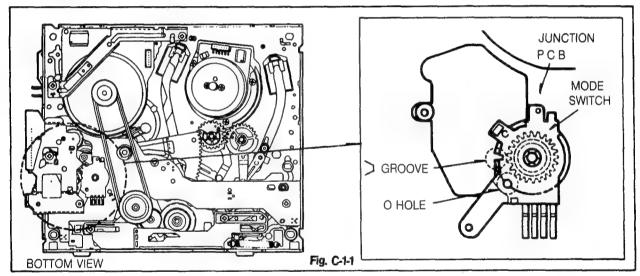
10-1. MECHANISM STATE SWITCH (MODE SWITCH) CHECK

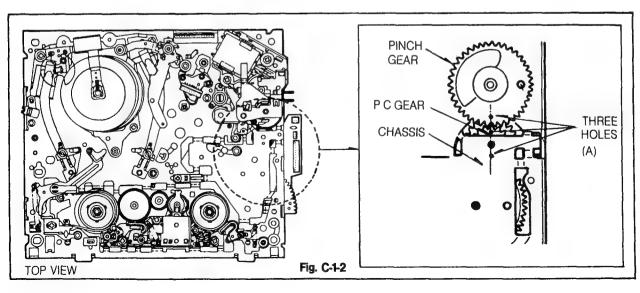
| urpose: To detect accurately the mechanism state and prevent the mechanism from malfunction | | |
|---|--|--|
| Test Equipment/Fixture VCR State Check Point | | |
| ●Blank tape | Eject Mode (with cassette ejected) | Mechanism state switch (Mode Switch and Cam) |

Check Procedure

- 1) Turn the VCR on and eject the tape by pressing eject button
- Remove the Cabinet Top, the Main P C Board and the CST Housing. Then push the CST IN/OUT switch (Loca #137) and eject button at the same time
- 3) Turn the worm (Loca #082) of Loading Motor Assembly (Loca #A10) to the left side (counterclockwise) to align the three holes (A) of the Pinch Gear, the P C.Gear and the Chassis
- 4) Remove the Bottom Cover and then check that the groove (V) and the hole (O) of Mode S/W are aligned each other. If the above alignment is not obtained, adjust as follows
 - (1) Remove the Bracket Assembly Bottom and the Capstan Belt in the state of power off
 - (2) Remove the P.C B Assembly, align the groove (V) and the hole (O) of Mode S/W each other and then reassemble the P.C.B Assembly
 - (3) Turn the power on and perform the various operations to check that the loading and the unloading are correct

Check Diagram





10-2. PREPARATON FOR ADJUSTMENT (To set VCR to the loading state without inserting a cassette)

- 1) Unplug the power cord from the AC outlet
- 2) Remove the Cabinet Top and Front Loading mechanism
- 3) Plug the power cord into the AC outlet
- Turn the VCR on and push the tact switch in the PCB Assembly

The VCR can accept input of each mode in this case However the rewind and review operation cannot be performed for more than a few seconds because the take-up reel table is in the stop state and reel pulses cannot be detected

(NOTE)

Always return the VCR to the Front Loading Mechanism Assembling State in the following order after the above operations have been performed

- 1) Press the Eject button after turning the power on
- 2) Wait for about 10 seconds until searching out the assembly position.
- Assemble the Front Loading Mechanism and connect the Front Loading Mechanism Connector
- Refer to the "Front Loading Mechanism Disassembly" which is described previously

10-3. REEL TABLE HEIGHT ADJUSTMENT

Purpose: To make the tension of tape constant so that the contact between the video heads and tape is stabilized.

| Test Equipment/Fixture | VCR State | Adjustment Point |
|---|--|------------------|
| ● Tension Meter (Tension adjustment) | Play without cassette and with a Tension Meter | Holder Band(B) |

Adjustment Procedures

(Position Adjustment)

- Perform loading without inserting a tape and loosen the screw that attaches the Holder Band(B) to the Deck Mechanism Assembly.
- 2) Insert the (-)type driver between the Holder Band(B) and the "V" groove of the chassis.
- Move the Holder Band(B) right and left and align the center of tension post(Guide T-Post) with the center of P1(Shaft P1).(tolerance:Less than ±0.3mm)
- Tighten the screw that attaches the Holder Band(B) to Deck Mechanism Assembly.

(Tension Adjustment)

- Play the Tension Meter and read the Tension Meter: 38g•cm±4g•cm(reference value).
- 2) If the result is abnormal.
 - over the standard:loosen the screw, move the Holder Band(B) to the right a little and then tighten the screw and make sure that this adjustment is correct.

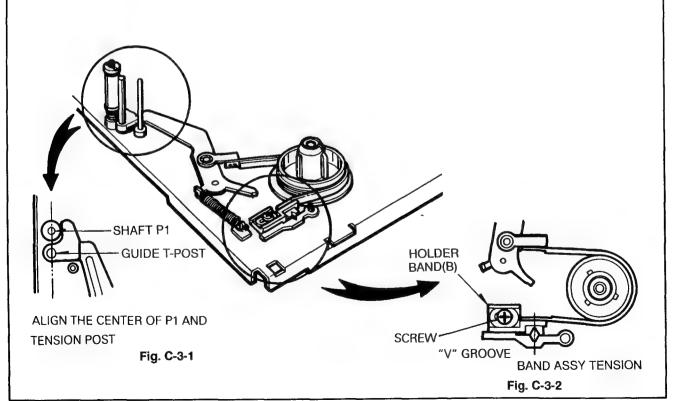
(2) below the standard:loosen the screw, move the Holder Band(B) to the left a little and then tighten the screw and make sure that this adjustment is correct.

CAUTION

The range of movement of Holder Band(B) should be within ± 1 5mm while being adjusted

If the range is over, you should recheck the Reel Brake, Tension Arm and Spring.

Adjustment Diagram



10-4. CHECKING TORQUE

Purpose: It is necessary to check the tension, torque and compression force at the tape take-up section and moving section to make the tape run smoothly and satisfy the basic performance of the VCR. Check these if the tape does not run smoothly or the tape speed is abnormal

| Test Equipment/Fixture | VCR state | |
|-------------------------|--|--|
| ● Torque Gauge | Set the VCR to each operation mode without inserting | |
| ◆Torque Gauge Adaptor | a cassette. | |
| Cassette Torque Meter | (See '2 Preparation for Adjustment') | |
| SRK-VHT-063 : Play, Cue | | |
| SRK-VHT-303 : Review | | |

| Item | VCR Operation mode | Measurement Reel | Measurement Values |
|----------------------|----------------------|--------------------------|--------------------|
| Main brake torque, | Eject | Supply and take-up reels | 600g cm or more |
| Slack removal torque | Unloading(power off) | Supply reel | 120~220g·cm |
| Fast forward torque | Fast forward | Take-up reel | 600g·cm or more |
| Rewind torque | Rewind | Supply reel | 600g·cm or more |
| Play take-up torque | Play | Take-Up reel | 90~150g·cm |
| Review Torque | Review | Supply Reel | 120~180 g.cm |
| CUE Torque | Cue | Take-Up Reel | 110~170 g.cm |

Checking Method

The values are measured by using a torque gauge and torque gauge adaptor with the torque gauge fixed

Note: This value is measured when the VCR is shifted in the unloading direction from the fast forward or rewind mode and quick braking is applied to both Reel Tables

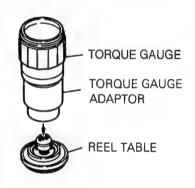


Fig. C-4

10-5. GUIDE ROLLER HEIGHT ADJUSTMENT

Purpose: To regulate the height of tape so that the bottom of tape runs along the tape guide line on the lower drum

A. Preliminary Adjustment

| Test Equipment/Fixture | VCR State | Adjustment Point |
|--|------------------------|--|
| Hexagonal Wrench or Bended Drive (+) Type Post Height Adjusting Driver | Play an alignment tape | Guide Roller Height Adjustment Screws on the Supply and Take-Up. Guide Rollers |

Adjustment Procedure

- 1) Perform the precise adjustment.
- 2) When the Guide Roller is damaged, release the Guide Roller retaining screw and then replace the Guide Roller

Adjustment Diagram GUIDE ROLLER HEIGHT ADJUSTMENT SCREW UPPER FLANGE GUIDE ROLLER RETAINING SCREW Fig. C-5-1

10-6. PRECISE ADJUSTMENT

| Test Equipment/Fixture | Test Equipment Connection Points | VCR State | Adjustment Point |
|---|--|--------------------------|--|
| Oscilloscope Post Height Adjusting Driver Alignment Tape(30HMP-2) Hexagonal wrench | ● CH-1 · PB RF Envelope ● CH-2 (NTSC : SW30Hz \ PAL : SW25Hz ● Head Switching Output Point ● RF Envelope Output Point | ● Play an alignment tape | Guide Roller Height Adjustment Screws. |

Adjustment Procedure

- 1) Play an alignment tape after connecting the probe of the oscilloscope to RF Envelope Output Test Point and Head Switching Output Test Point
- 2) Tracking control(in PB mode) Center position(When this adjustment is performed after the drum assembly has been replaced, set the tracking control so that the RF output is maximum)
- 3) Height adjustment screw: Flatten the RF waveform
- 4) Turn(Move) the tracking control(playback) clockwise and counterclockwise.(to the right and left)
- 5) Check that any drop of RF output is uniform at the start and end of the waveform.

CAUTION

If the adjustment is excessive or insufficient the tape is jammed or folded.

Waveform Diagrams

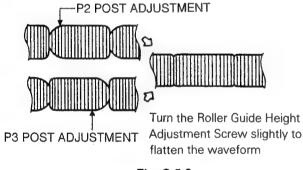
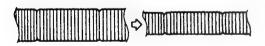


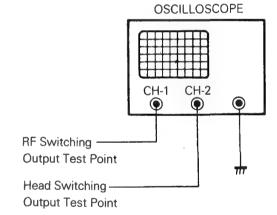
Fig. C-5-2



Tracking control at center Turn(Move) the tracking control to both directions

Fig. C-5-3

Connection Diagram



10-7. AUDIO/CONTROL (A/C) HEAD ADJUSTMENT

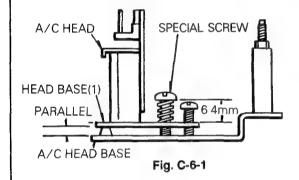
Purpose: To keep the contact between the tape and head so that the specificed track is recorded and played back

A. Preliminary Adjustment (Perform the preliminary adjustment, when there is no Audio Output signal with alignment tape.)

| Test Equipment/Fixture | VCR State | Adjustment Points |
|------------------------|--------------------|--|
| ●M3 Nut Driver | | Special screwCone Point Screw for tiltAzimuth Adjustment Screw |
| Blank tape | Run the blank tape | ●A/C Head Adjuster |

Adjustment procedure/Adjustment Diagram

1) Tighten the special screw so that the spring section protrudes 6.4mm(approx.) over the top of Head Base (1).



2) Turn the Azimuth Adjustment Screw and Cone Point Screw so that the Head Base(1) and A/C Head Base are parallel

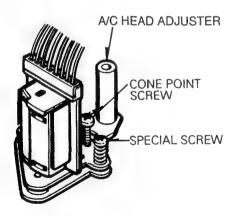
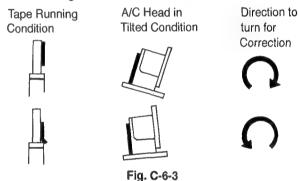


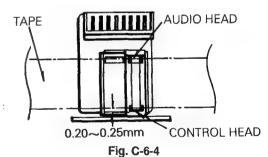
Fig. C-6-2

 Load a blank tape and set the VCR to the play mode.

- 4) Confirm that the tape runs fittingly to the lower limit of the P4 post. Also confirm that the tape runs smoothly.
- 5) If adjustment is required, turn Cone Point Screw clockwise until curling is apparent at the lower edge of P4. Then turn Cone Point Screw counterclockwise until the curling smooths out



6) Check that there is no conspicuous curling and folding around the A/C head. If there is conspicuous curling or folding, readjust the Cone Point Screw, Azimuth Adjustment Screw and A/C Head Adjuster. When the bottom edge of tape is 0 20~0.25mm from the bottom edge of the control head's core, the height of A/C head is ideal.



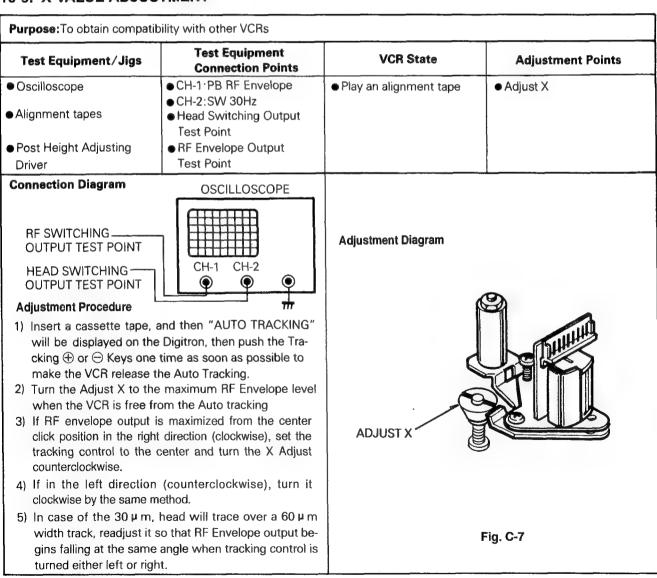
7) If necessary repeat steps 1 through 4 until a precise adjustment is achieved.

10-8. PRECISE ADJUSTMENT

| Test Equipment/Fixture | Test Equipment Connection Point | VCR State | Adjustment Points |
|---|---------------------------------|---|---|
| OscilloscopeAlignment tapesM3 Nut Driver | ◆Audio output jack | ● Play an alignment tape 1KHz, 7KHz sections | Azimuth Adjustment ScrewA/C Head adjusterCone point screw |
| Adjustment Procedure 1) Connect the probe of oscilloscope to audio output jack 2) Adjust the Azimuth Adjustment Screw, A/C Head adjuster and cone point screw slightly and alternately so that an Audio 1KHz output is maximum and flat. (minimum fluctuation). | | Waveform Diagram | B B' |
| Adjust the Azimuth Adju alternately so that the Au | dio 7KHz output is maximum | A.Maximum | BB' Minimum |

Fig. C-6-5

10-9. X-VALUE ADJUSTMENT



10-10. ADJUSTMENT AFTER REPLACING DRUM ASSEMBLY (VIDEO HEADS)

| Test Equipment/Fixture | Test Equipment Connection Points | VCR State | Adjustment Points |
|--|--|---|---|
| Oscilloscope Post Height Adjusting Driver Alignment tape Blank tape M3 Nut Driver | Checking the flatness CH-1 PB RF Envelope CH-2 (NTSC: SW30Hz PAL: SW25Hz Head Switching Output Point RF Envelope Output Point | Run the blank tapePlay an alignment tape | Guide Rollers Precise Adjustment Switching point Tracking point X-Value |
| Connection Diagram | | Waveform Diagram | |
| RF SWITCHING ———————————————————————————————————— | OSCILLOSCOPE | V, | |
| Checking/Adjustment Procedure 1) Run the blank tape, check and adjust whether the Roller Guide is curling or creasing tape around the Roller Guide 2) Check the RF envelope output flatness and adjust the Roller Guide Height while playing an alignment tape 3) Adjust the head switching point 4) Check that RF envelope output is maximum when the | | V1/V MAX V2/V MAX RF ENVELC | |
| tracking is at the initial po 5) Adjust the Tracking Pre- Adjust | sition set and X-Value Adjust with X | F | ig. C-8 |

10-11. CHECK OF TAPE TRAVEL AFTER REASSEMBLING DECK ASSEMBLY

Check Audio and RF Locking Time during playback after CUE or REV.

| Test Equipment/Fixture | Specification | Test Equipment Connection Point | VCR State |
|--|--|--|--|
| ● Oscilloscope ■ Alignment tape (with 6H 3kHz Color Bar Signal) ■ Stop Watch | RF Locking Time . Less than 5 sec Audio Locking Time . Less than 10 sec. | CH-1 PB RF Envelope CH-2 . Audio Output RF Envelope Output Point Audio Output Jack | Play an alignment tape (with 6H 3kHz Color Bar Signal) |

Checking Procedure

- 1) Change the mode of CUE or REV to play.
- 2) At this time, confirm that the Locking Time of Audio and RF Output Waveform fits to specification.
- 3) If the results checked above are abnormal, reapeat adjustments 4 through 8

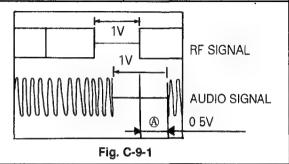
* 6H · LP

Check the coincidence of both Audio and Video Sync.(Lip Sync.)

| Test Equipment/Fixture | Specification | Test Equipment Connection Point | VCR State |
|--|-------------------|--|---|
| Oscilloscope 2H 9V Tape(for X-Value Adjustment Coincidence) or alignment tape | ● Less than ±0.5V | CH-1: PB RF Envelope CH-2: Audio Output RF Envelope Output Point Audio Output Jack | ● Play a 2H 9V tape or an alignment tape. |

Checking Procedure

- 1) Confirm that the period (A) of Fig. C-9-1 is within \pm 0.5V
- 2) If the result is abnormal, repeat adjustment #7. (X-Value adjustment).



* 2H : SP, V: Vertical

Check the occurance of tape curl and jam

| Test Equipment/Fixture | Specification | VCR State |
|------------------------------|--|--|
| ● T-160 Tape ● T-120 Tape | Be sure there is no jam or curl at the beginning, the middle period or the end of the T-160 tape | Run the CUE, REV play mode at the beginning and the end of the tape. |

Checking Procedure

- Confirm whether the state of each transportation post is normal.
- 2) Make sure nothing is wrong with the operation of the Counter, when the lower part of tape is folded.
- 3) Be sure there is nothing wrong in the Audio signal, when the upper part of tape is folded.
- 4) If the result is abnormal, repeat adjustment #5 and #6.

Check the adjustment state of Take-Up Guide

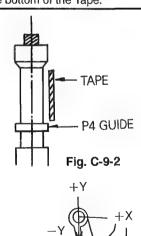
| Test Equipment/Fixture | Specification |
|--|---|
| ● T-120 Tape ■ Take-Up Guide Adjusting Driver | Review: Travel the tape that align the top of the P4 Guide and the bottom of the Tape or be folded. Play: Travel the tape that align the top of the P4 Guide and the bottom of the Tape. |

Checking Procedure

- Run the CUE or PLAY mode at the middle period or the end of the T-120 tape.
- 2) Run the REV mode at the play or cue part of tape
- 3) At this time, confirm that the change of tape height at the P4 Guide fits to specification
- 4) If the result is abnormal, refer to Table 9-1.
- 5) Play the beginning of T-120 tape(within 5 min.)
- 6) Confirm that the state of tape transportation fit to specification in P4 Guide
- 7) Remove the Tension Arm Assembly by rotating in the clockwise direction and then confirm that the state of tape transportation fit to specification.
- 8) If the result is abnormal, refer to Table 9-1.

| PLAY Mode | REV Mode | Adjustment Method | |
|--------------|--------------|-------------------------------------|--|
| Tape Falling | Tape Lift | Bend the shaft of the direction +Y | |
| Tape Lift | Tape Falling | Bend the shaft of the direction -Y. | |

Table 9-1



10-12. MAINTENANCE/INSPECTION PROCEDURE

(1) Réquired Maintenance

The recording density of a VCR is much higher than that of an audio tape recorder. VCR components must be very precise, at tolerances of 1/1000mm, to ensure compatibility with other VCRs. If any of these components are worn or dirty, the symptoms will be the same as if the part is defective. To ensure good picture, periodic inspection and maintenance, including replacement of worn out parts and lubrication, are necessary.

(2) Scheduled Maintenance

Schedules for maintenance and inspection are not fixed because they vary greatly according to the way in which the customer uses the VCR, and the environment in which the VCR is used

But, in general home use, a good picture will be maintained if the inspection and maintenance is made every 1,000hours. The table below shows the relation between time used and inspection period

Table 1

| When inspection is necessary Average hours used per day | About 1 year | About 18 months | About 3 years |
|--|-----------------|-----------------|---------------|
| One hour | | | |
| Two hours | ////// | | |
| Three hours | //// | | |

(3) Check before starting repairs

The following faults can be remedied by cleaning and oiling Check the needed lubrication and the conditions of cleanliness in the unit

Check with the customer to find out how often the unit is used, and then determine that the unit is ready for in spection and maintenance Check the following parts

Table 2

| Phenomenon | Inspection |
|-----------------------------|-------------------------------|
| Poor S/N, no color | Dirt on video head or |
| | worn video head |
| Tape does not run or tape | Dirt on pressure roller, belt |
| is slack | or flywheel belt |
| Vertical jitter, horizontal | Dirt on video head or in |
| jitter | tape transport system |
| Color beats | Dirt on full-erase head |
| Low volume or sound | Dirt on audio/control head |
| distorted | |
| Fast forward or rewind is | Dirt on belt |
| not done or rotation is | |
| slow | |

(4) Supplies Required for Inspection and Maintenance

- (1) Greases Kanto G-31(or equivalent)
- (2) Alcohol(Isopropyl Alcohol)
- (3) Cleaning Patches

5) Maintenance Procedure

5-1) Cleaning

(1) Cleaning video head

First use a cleaning tape If dirt on head is too stubborn to remove by tape, use the cleaning patch Coat the cleaning patch with alcohol(Isopropyl Alcohol) to the point indicated. Touch the cleaning patch to the head tip and gently turn the head(rotating cylinder) right and left.

(Do not move the cleaning patch vertically and make sure that only the buckskin on the cleaning patch comes into contact with the head. Otherwise, the head may be damaged)

Thoroughly dry the head. Then run test tape. If alcohol (Isopropyl Alcohol) remains on the video head, the tape may be damaged when it comes into contact with the head surface.

(2) Clean the tape transport system and drive system, etc, by wiping with a cleaning patch wetted with alcohol (Isopropyl Alcohol).

Note:

- ① It is the tape transport system which comes into contact with the running tape. The drive system consists of those parts which move the tape
- ② Make sure that during cleaning you do not touch the tape transport system with the tip of a screw driver and no force is applied to the system that would cause deforming.

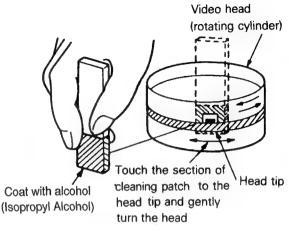


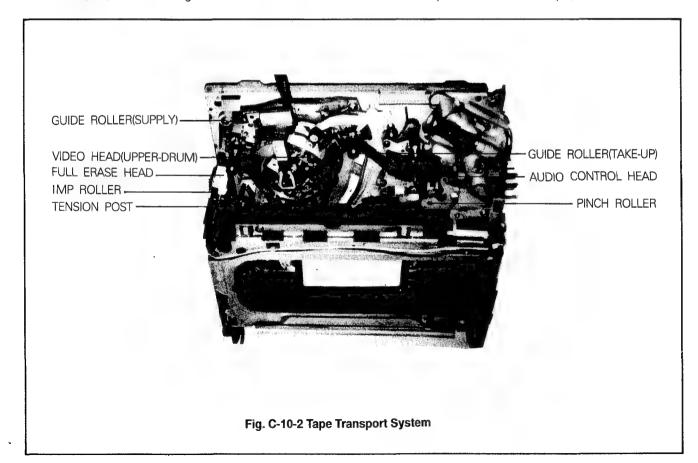
Fig. C-10-1

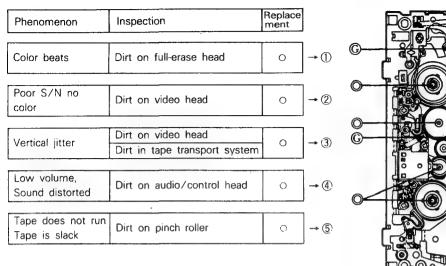
5-2) Greasing

(1) Greasing guidelines

Apply grease, with a cleaning patch. Do not use excess grease It may come into contact with the tape transport of drive system. Wipe any excess and clean with cleaning patch wetted in alcohol(Isopropyl Alcohol).

(2) Periodic greasing
Grease specified locations every 5,000hours





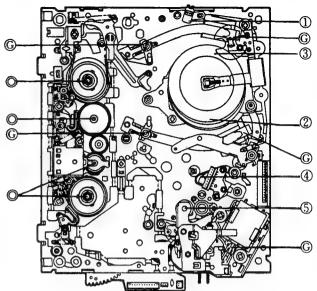


Fig. A-11 Top View of Mechanism

| Phenomenon | Inspection Location | Replace ment | |
|---|---------------------|-----------------|----------|
| Do not fast forward or rewind, or rotation is slow Tape does not run | Dirt on reel belt | 0 | → |
| Slack tape | | | |

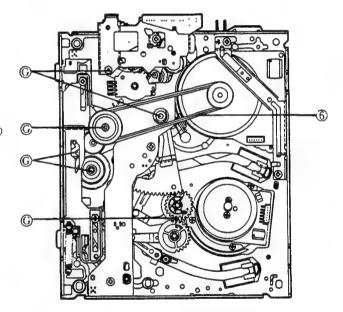


Fig. A-12 Bottom View of Mechanism

Note:If locations marked with O do not operate normally after cleaning, check for wear and replace.

See the EXPLODED VIEWS at the end of this manual as well as the above illustrations for the sections to be lubricated and greased.

@:Grease @:Oil

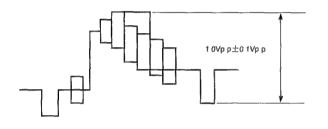
SECTION 11 CIRCUIT ADJUSTMENT

11-1. Y/C Adjustment 1) PB LEVEL Adjustment

| MODE | Measure point | Adjust Point | Normal |
|-------|---------------|--------------|----------------------|
| PB SP | VOUT | VR 301 | 1 0Vp-p ± 0 1Vp-p |

- Playback an SP standard Tape
- Connect CH-1 of the oscilloscope to V out
- Adjust VR301 so that video out level is 1 0 \pm 0 1Vp-p

Waveform

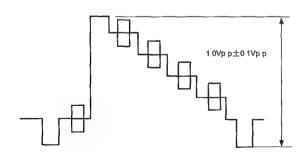


2) EE LEVEL Adjustment

| MODE | Measure point | Adjust Point | Normal |
|---------|---------------|--------------|----------------------|
| EE(REC) | V OUT | VR 303 | 1 0Vp-p ± 0 1Vp-p |

- Set the VCR to A/V mode
- Input the 100% color bar signal of the pattern generator to Video in Jack (1Vp-p)
- Connect CH-1 terminal of the oscilloscope to the Video out
- Adjust VR303 so that the Video out level is 1 0 ±0 1Vp-p

Waveform



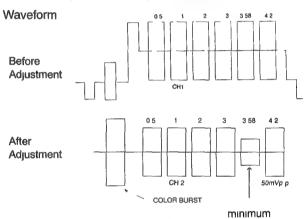
3) Y/C Separation Adjustment

| MODE | Measure point | Adjust Point | Normal |
|---------|---------------|--------------|--|
| EE(REC) | IC301 21PIN | VR 305 | The 3 58MHz Y component of the remained multiburst signal is minimum |

- Set the VCR to A/V mode
- Input the 100% multi-burst signal of pattern generator to video in jack
- Connect CH-1 of the oscilloscope to Pin21 of IC301 and CH-2 to the video out and then CH-2 trigger

*OSCILLOSCOPE RANGE CH-1 0 1V/DIV CH-2 0 5V/DIV TIME 10uS

 Adjust VR305 so that the 3 58MHz Y component of the remaining multi burst signal is minimum



4) FM CARRIER SYNC TIP Adjustment

| MODE | Measure point | Adjust Point | Normal |
|---------|---------------|--------------|--|
| EE(REC) | IC301 34PIN | VR 304 | 3 4MHz ±0 05MHz (Deviation 1 + 0 1MHz) |

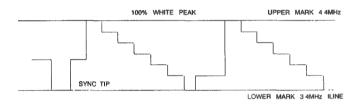
- Set the VCR to A/V mode
- Input the 100% color bar signal of pattern generator to A/V video in Jack (1Vp-p)
- Connect the frequency to Pin34 of IC301 and modem test input terminal
- Adjust VR 304so that the counter read 3 4MHz

5) DEVIATION WHITE PEAK Adjustment

| MODE | Measure point | Adjust Point | Normal |
|---------|-------------------------------|--------------|---|
| EE(REC) | IC301: 34PIN 10430 (V.OUT) | VR 302 | 4 4MHz ±0 05MHz (DEVIATION 1 ±0 1MHz) |

- Set the VCR to A/V mode.
- Input the 100% color bar signal of pattern generator to A/V video in Jack. (1Vp-p)
- Connect the oscilloscope probe (10:1) to Pin34 of IC301 and modern test input terminal. Connect the modern test output to CH-1 of the oscilloscope with BMC cable and connect the Video output to CH-2 of the oscilloscope and then trigger about 2H. (4.4MHz)
- Adjust VR302 so that the oscilloscope may read 1Vp-p.

Waveform



6) PG Adjustment

| | MODE | Measure point | Adjust Point | Normal |
|---|-------|---------------|--------------|-----------|
| | PB SP | W383, V.OUT | VR 201 | 412 ±20uS |
| 1 | | | | |

- Playback an SP standard tape.
- Connect CH-1 of the oscilloscope to W383(H/SW), CH-2 to V.OUT and Trigger to CH-1.
- * OSCILLOSCOPE RANGE

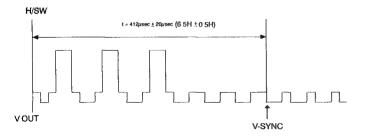
CH-1: 2V/DIVCH-2: 0.5V/DIV

CH-2: 0.5V/D

L TIME: 50uS

 Adjust VR201 so that the time vinterval from the falling edge of H/SW signal to the V-SYNC of video signal is t=412usec ±20usec.

Waveform



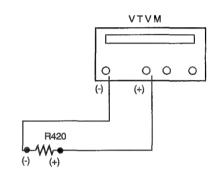
11-2. AUDIO Adjustment

1) REC BIAS LEVEL Adjustment

| MODE | Measure point | Adjust Point | Normal |
|------|---------------|--------------|------------------|
| REC | R420 | VR 401 | 3.0mV ± 0.1mVrms |

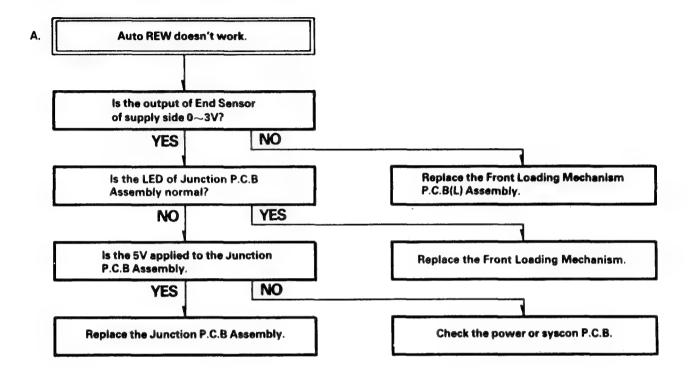
- Insert the test tape for recording and press the REC button.
- ◆ Connect the (+) and (-) terminals of multimeter to both terminals of R420. At this time, adjust VR401 so that the Bias level may be within 3.0mV ±0.1mVrms.

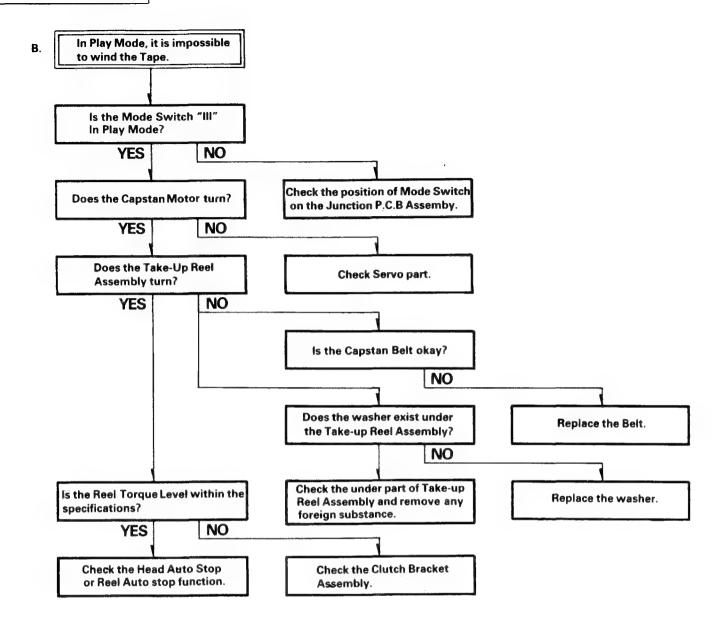
Connection diagram

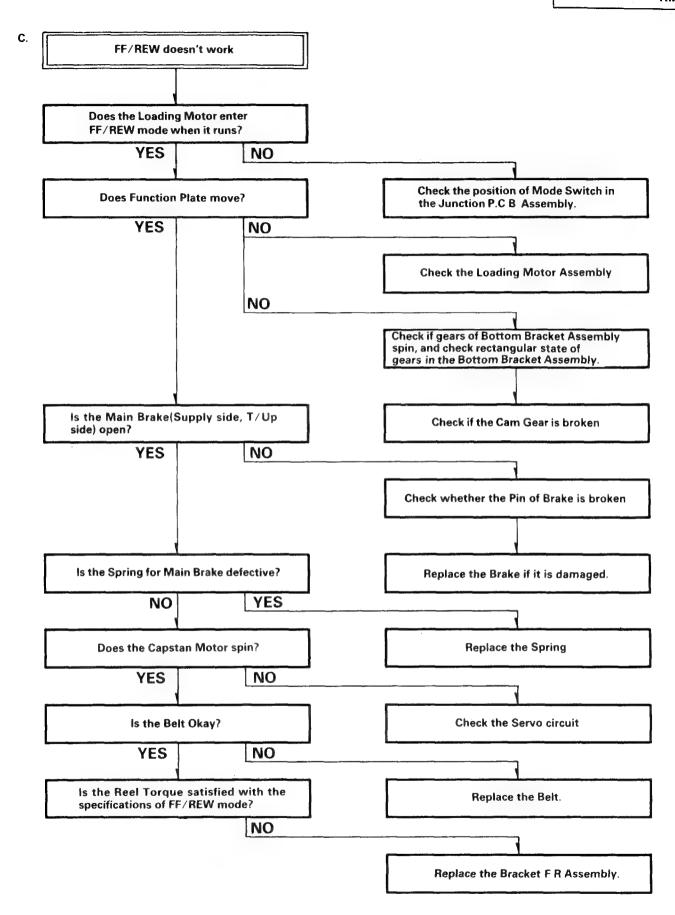


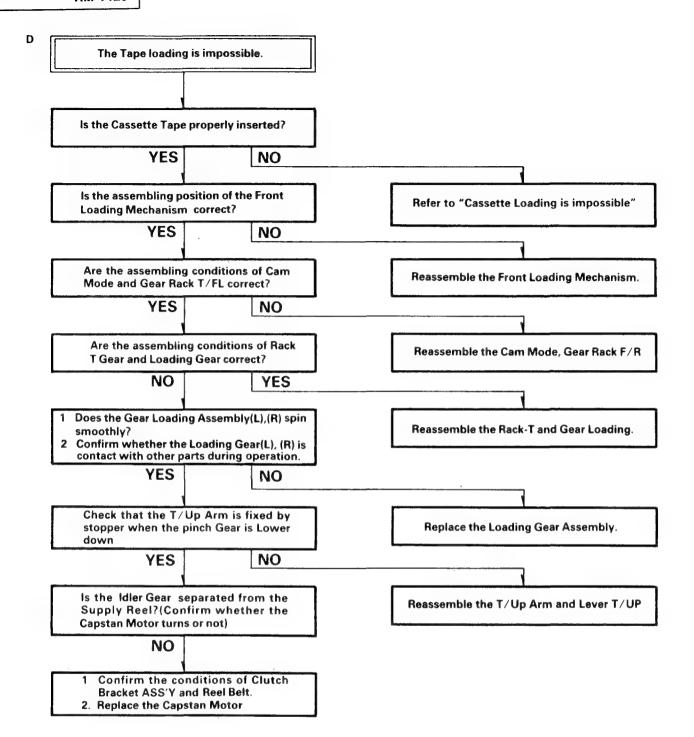
SECTION 12 TROUBLESHOOTING

12-1. DECK MECHANISM

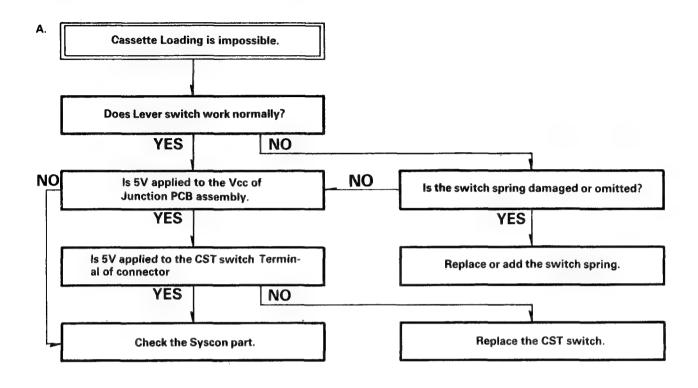


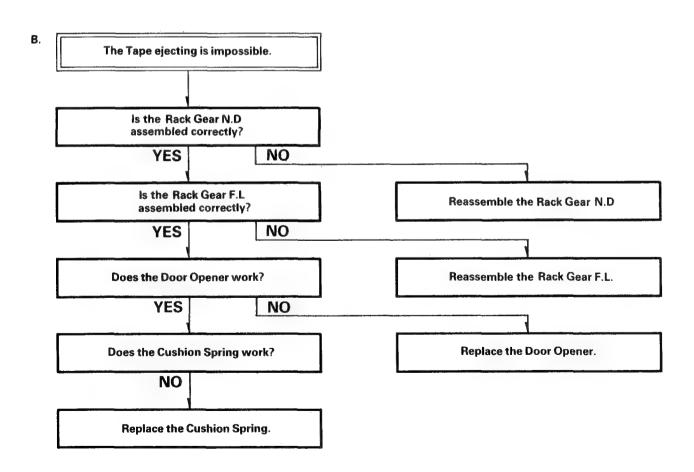


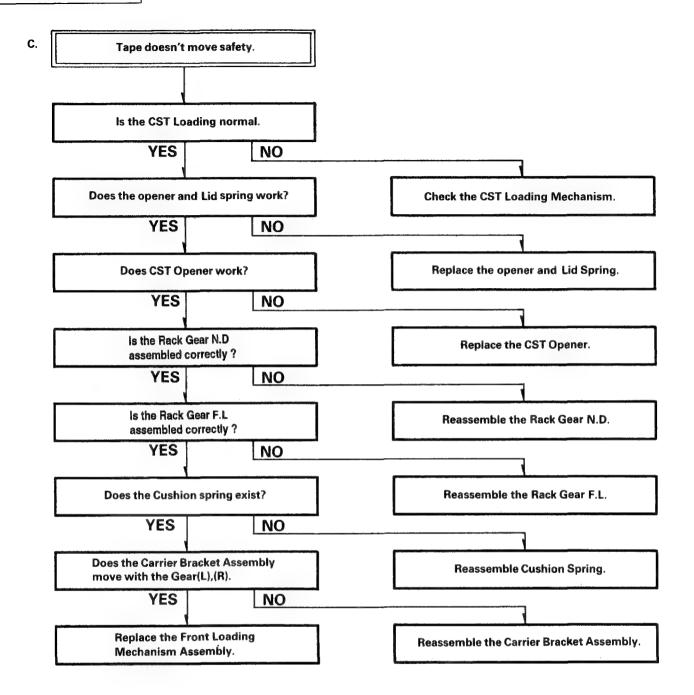




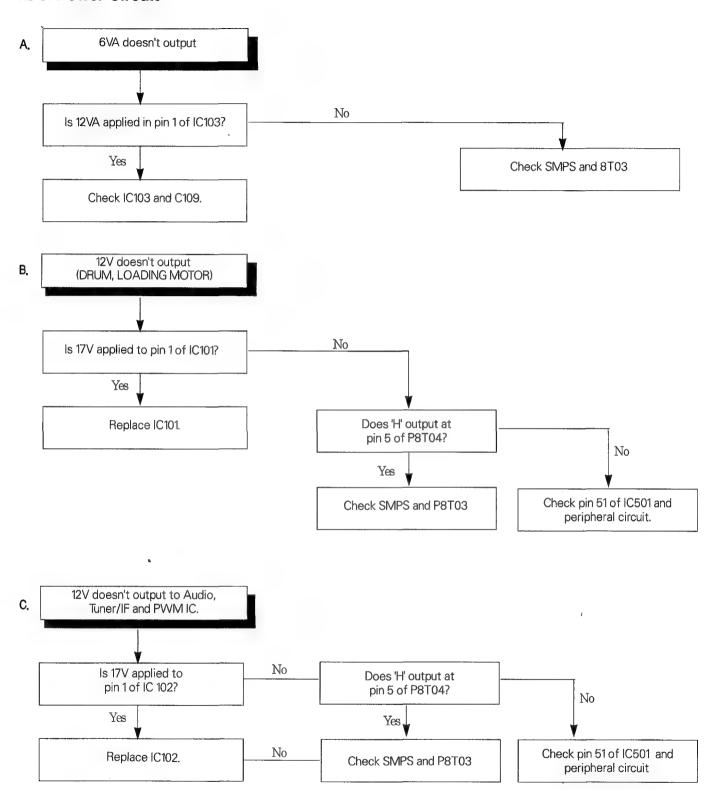
12-2. Front Loading Mechanism

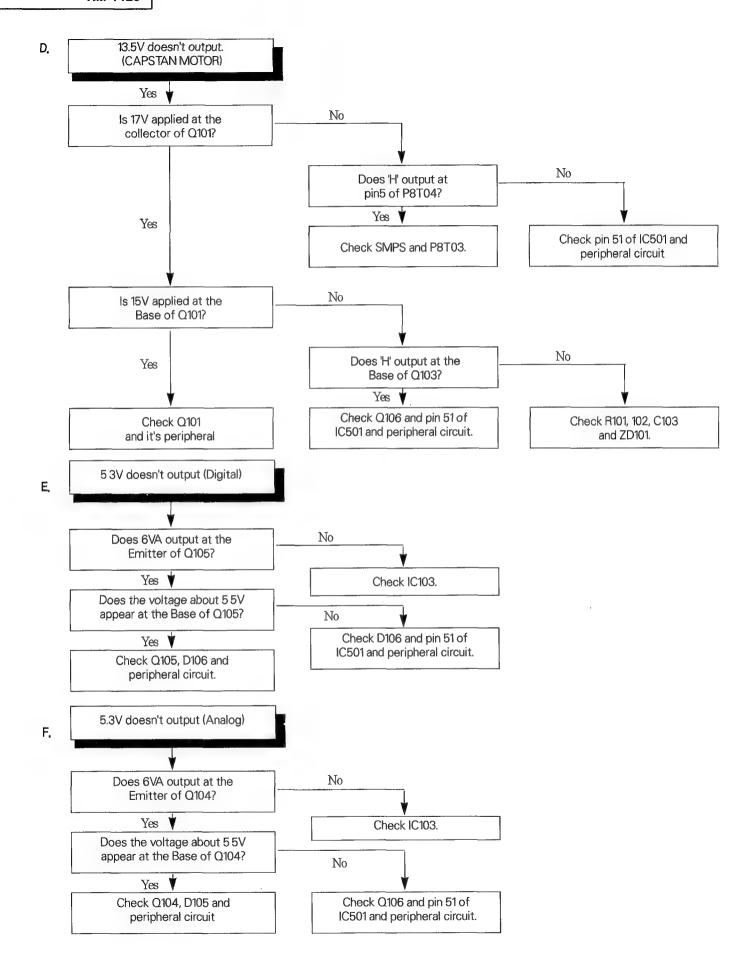


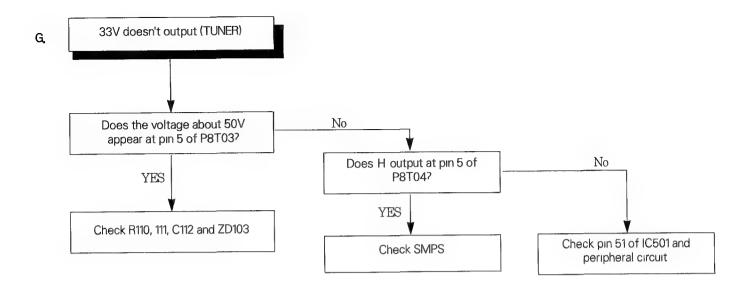




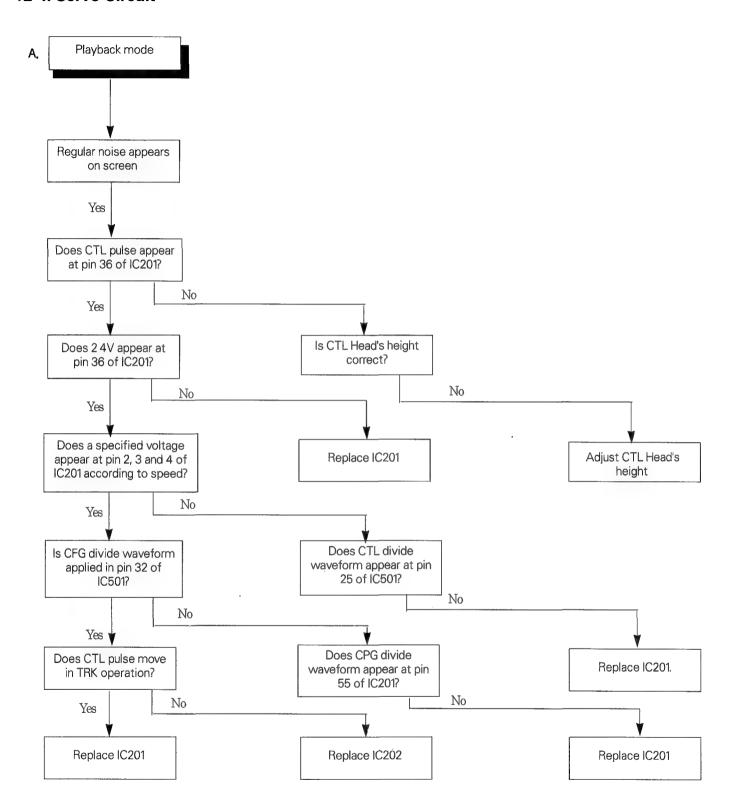
12-3. Power Circuit

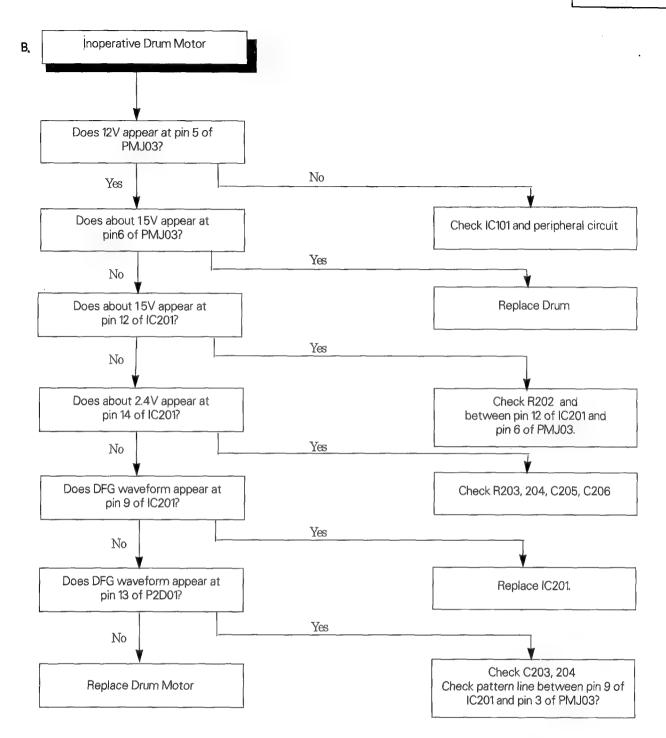


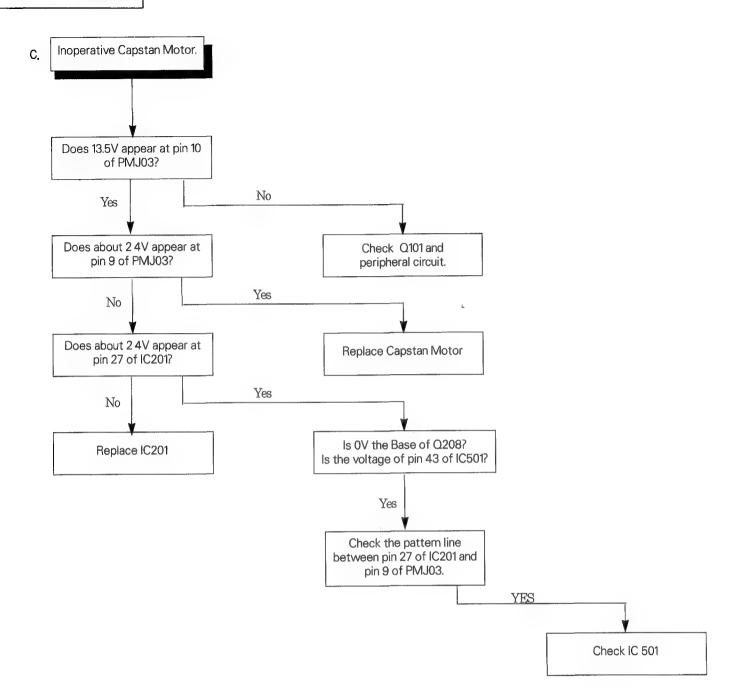




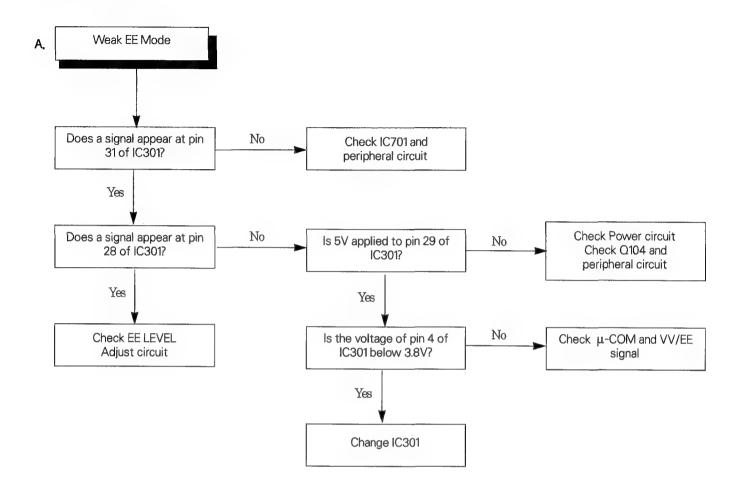
12-4. Servo Circuit

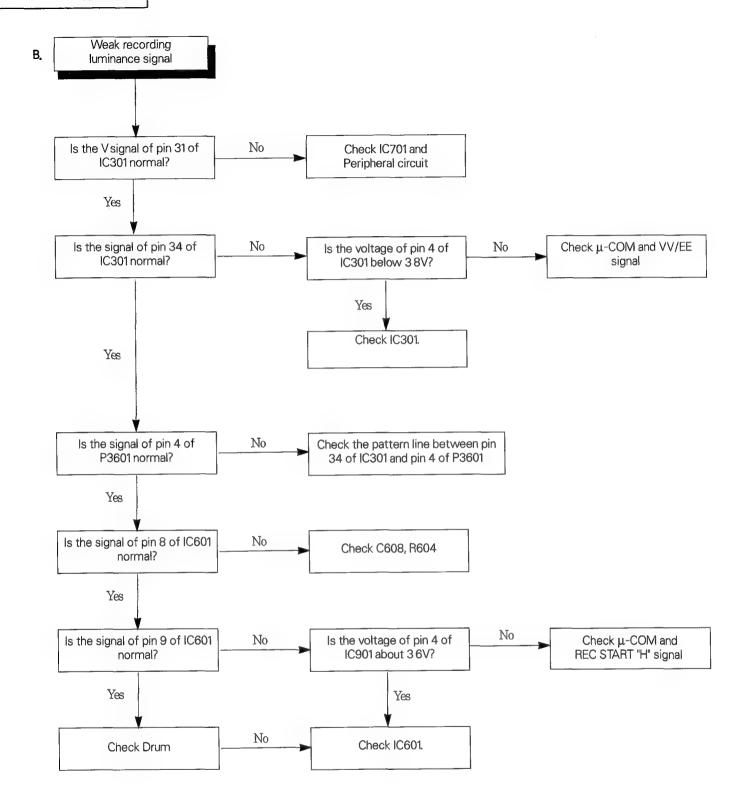






12-5. Y/C Circuit





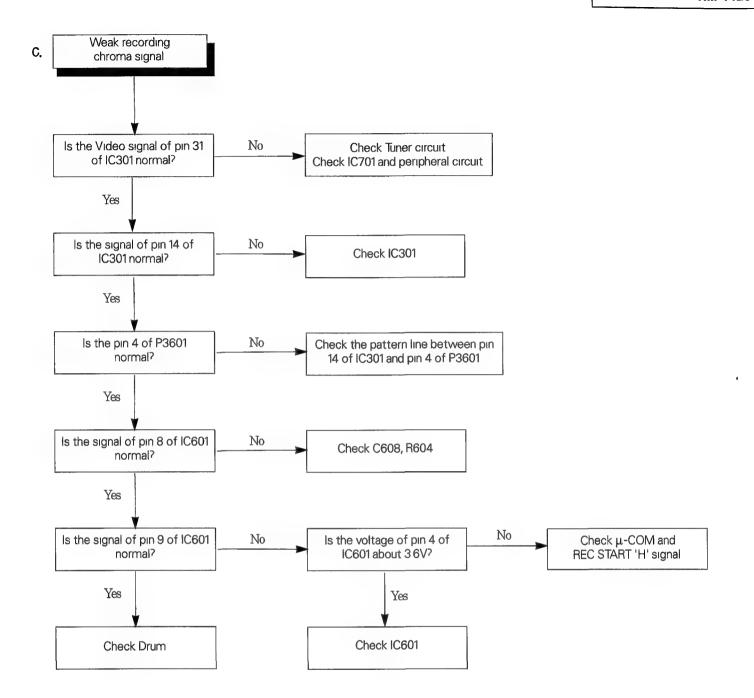


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(CAUTION)

SHORT CIRCUIT THE ANODE OF THE PICTURE TUBE AND THE ANODE CAP TO THE METAL CHASSIS, CRT SHIELD, OR CARBON PAINTED ON THE CRT, AFTER REMOVING THE ANODE.

WARNING!!

AN ISOLATION TRANSFORMER SHOULD BE USED DURING ANY SERVICE TO AVOID POSSIBLE SHOCK HAZARD, DUE TO LIVE CHASSIS THE CHASSIS OF THIS RECEIVER IS DIRECTLY CONNECTED TO THE AC POWER LINE.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND \triangle MARK ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY CIRCUIT ADJUSTMENTS THAT ARE CRITICAL TO SAFE OPERATION ARE IDENTIFIED IN THIS MANUAL FOLLOW THESE PROCEDURES WHENEVER CRITICAL COMPONENTS ARE REPLACED OR IMPROPER OPERATION IS SUSPECTED.

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(ATTENTION)

ARRES AVOIR DECONECTE LE CAP DE L'ANODE, COURT CIRCUITER L'ANODE DU TUBE CATHODIQUE ET CELUI DE L'ANODE DU CAP AU CHASSIS METALLIQUE DE L'APPAREIL, OU AU COUCHE DE CARBONE PEINTE SUR LE TUBE CATHODIQUE OU AU BLINDAGE DU TUBE CATHODIQUE

ATTENTIONII

AFIN D'EVITER TOUT RISQUE D'ELECTROCUTION PROVENANT D'UN CHEÁSSIS SOUS TENSION, UN TRANSFORMATEUR D'ISOLEMENT DOIT ETRE UTILISE LORS DE TOUT DÉPANNAGE LE CHÁSSIS DE CE RÉCEPTEUR EST DIRECTEMENT RACCORDÉ Á

L'ALIMENTATION SECTEUR.

ATTENTION AUX COMPOSANTS RELATIFS ALA SÉCURITÉ!!

LES COMPOSANTS IDENTIFIÉS PAR UNE TRAME ET PAR UNE MAPQUE

△ SUR LES SCHÉMAS DE PRINCIPE, LES VUES EXPLOSÉES ET LES
LISTES DE PIECES CONT D'UNE IMPORTANCE CRITIQUE POUR LA
SÉCURITÉ DU FONCTIONNEMENT NE LES REMPLACER QUE PAR DES
COMPOSANTS SONY DONT LE NUMÉRO DE PIÉCE EST INDIQUÉ DANS
LE PRÉSENT MANUEL OU DANS DES SUPPLÉMENTS PUBLIÉS PAR
SONY LES RÉGLAGES DE CIRCUIT DONT L'IMPORTANCE EST CRITIQUE
POUR LA SÉCURITÉ DU FONCTIONNEMENT SONT IDENTIFIES DANS LE
PRÉSENT MANUEL SUIVRE CES PROCÉDURES LORS DE CHAQUE
REMPLACEMENT DE COMPOSANTS CRITIQUES, OU LORSQU'UN
MAUVAIS FONCTIONNEMENT EST SUSPECTÉ

SAFETY CHECK-OUT

(US Model only)

After correcting the original service problem, perform the following safety checks before relasing the set to the customer

- 1 Check the area of your repair for unsoldered or poorly soldered connections Check the entire board surface for solder splashes and bridges
- 2 Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors
- 3 Check that all control knobs, shields, covers, ground straps, and mounting hardware have been replaced Be absolutely certain that you have replaced all the insulators
- 4 Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair Point them out to the customer and recommned their replacement
- 5 Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
- 6 Check the line cord for cracks and abrasion Recommend the replacement of any such line cord to the customer
- 7 Check the condition of the monopole antenna (if any) Make sure the end is not broken off and has the plastic cap on it
 - Point out the danger of impalement on a broken antenna to the customer, and recommend the antenna's replacement
- 8 Check the B+ and HV to see they are at the values specified make sure your instruments are accurate, be suspicious of your HV meter if sets always have low HV
- 9 Check the antenna terminals, metal trim, 'metallized' knobs, screws, and all other exposed metal parts for AC leakage Check leakage as described below

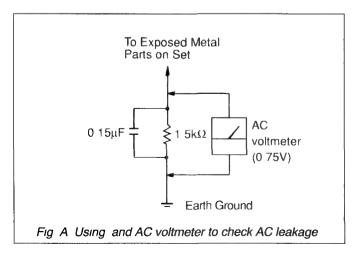
LEAKAGE TEST

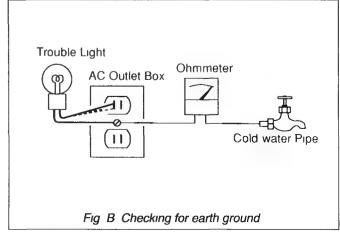
The AC leakage from any exposed metal parts to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0 5mA (500 microampers) Leakage current can be measured by any one of three methods

- 1 A commercial leakage tester, such as the Simpson 229 or RCA WT-540A Follow the manufacturers instructions to use these instruments
- 2 A battery-operated AC milliammeter The Data Precision 245 digital multimeter is suitable for this job
- 3 Measuring the voltage drop across a resistory by means of a VOM or battery-operated AC voltmeter. The 'limit" indication is 0.75V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63TRD are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2V AC range are suitable. (See Fig. A)

HOW TO FIND A GOOD EARTH GROUND

A cold-water pipe is guaranteed earth ground, the coverplate retaining screw on most AC outlet boxes is also at earth ground. If the retaining screw is to be used as your earth-ground, verify that it is at ground by measuring the resistance between it and a coldwater pipe with an ohmmeter. The reading should be zero ohms. If a cold-water pipe is not accessible, The reading should be zero ohms. If a cold-water pipe is not accessible, connect a 60-100 watts trouble light (not a neon lamp) between the hot side of the line, the lamp should light at normal brilliance if the screw is a ground potential (See Fig. B)





SECTION I

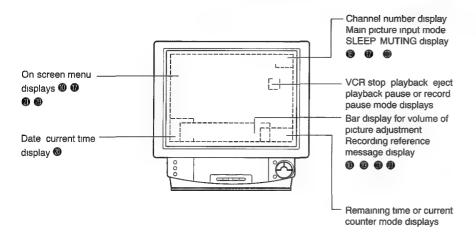
Preface

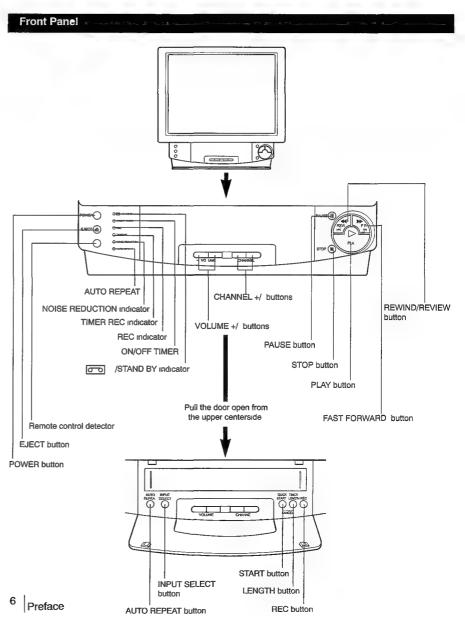
The operating instructions mentioned here are partial abstracts from the Operating Instruction Manual The page numbers of the Operating Instruction Manual remain as in the manual

1-1. LOCATING THE CONTROLS

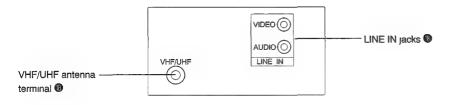
Screen Displays

For details see the pages indicated by the numbered black circles •





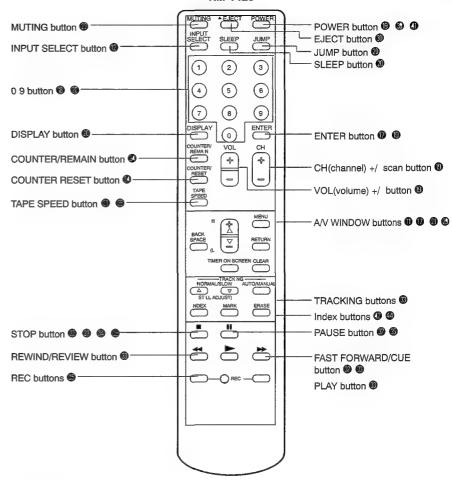
- 4



Remote Commander

For details see the pages indicated by the numbered black circles

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WARNING

Batteries may explode if mistreated Do not recharge disassemble or dispose of in fire

Preface 7

8 Preface

5

1-2. CONNECTING TV ANTENNA/CABLE

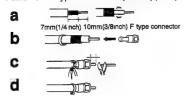
Although you can use either an indoor or outdoor antenna with the VIDEO TV an outdoor antenna will provide you with better picture quality. You can receive cable TV by connecting a cable supplied by your local cable company

Connecting VHF, UHF or VHF/UHF Combination Antenna, or CATV Cable

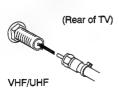
75-ohm coaxial cable (round)

1 Check your antenna cable type and prepare the end of the cable using the F type connector

Attach an F-type connector (not supplied)



2 Plug the connector into the VHF/UHF terminal at the rear of the VIDEO TV



Most combination antennas are equipped with a signal splitter Remove the splitter and attach the appropriate connector

300-ohm twin-lead cable (flat)

1 Check your antenna cable type and prepare the end of the cable using the 300 ohm twin lead cable

Loosen both screws

on the connector with

Attach the cable and

tighten both screws with a screwdriver

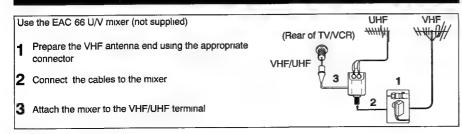
Attach the supplied antenna connector



2 Plug the connector into the VHF/UHF terminal at the rear of the VIDEO TV



Connecting Both VHF and UHF antennas



When the U/V mixer is used

Snow and noise may appear in the pictures when viewing cable TV channels over 37 (W + 1)

Preface

10 Preface

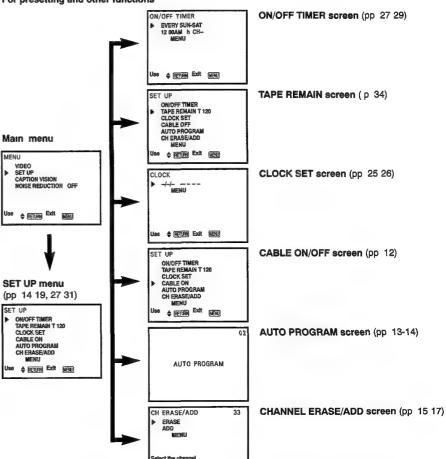
1-3. USING THE ON-SCREEN MENUS

The following flow chart shows the different levels of on-screen menus that you can use to make various adjustments and settings. See the indicated pages for instructions on using each feature

For picture quality adjustment

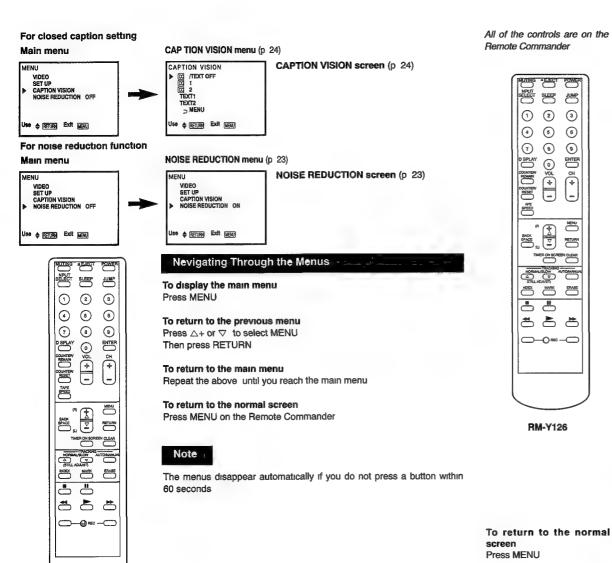


For presetting and other functions

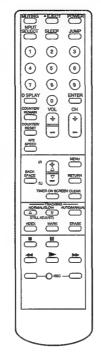


\$ RETURN Exit MENU

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All of the controls are on the Remote Commander



If you have cable connected to your VIDEO TV (p 10) follow the steps below to turn the cable connection on or off CABLE is preset to OFF when you use your VIDEO TV for the first time. Turn CABLE to OFF to preset or watch VHF or UHF channels

1 Press △+ or ▽ to select SET UP in main menu



Press RETURN The SET UP menu appears



MENU VIDEO SET UP CAPTION VISION NOISE REDUCTION OFF

jee o Return Exit Menu

SET UP ON/OFF TIMER TAPE REMAIN T 120 CLOCK SET CABLE OFF AUTO PROGRAM CH ERASE/ADD > MENU e 🛊 RETURN Exit WEND

2 Press △+ or ▽ to select CABLE

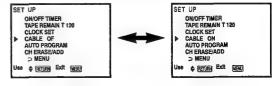


SET UP ON/OFF TIMER
TAPE REMAIN T 120
CLOCK SET
CABLE OFF
AUTO PROGRAM
CH ERASEADD ♦ RETURN Exit MENU

3 Press RETURN

RM-Y126

Press △+ or ▽ to select ON or OFF alternately



Press RETURN The setting is completed

Note

If the VIDEO TV is in LINE mode, you cannot select CABLE Repeatedly press INPUT SELECT to change to TV mode

000

2 3

((5) (6)

7 (8) (9)

() ₹ (+) I JUMP

ENTER

*

RETURN

TIMER ON SCREEN CLEAR

MARK

 Note

Perform auto programming during the day rather than late at night, when some channels may not be broadcasting

Press POWER on the VIDEO TV or the Remote Commander to turn the VIDEO TV on



2 Turn the cable connection on or off to select the type of channel you want to preset, VHF/UHF or cable TV (Follow the steps in "Turning the Cable Mode On or Off p 12)

3 Press MENU The main menu appears



MENU VIDEO SET UP CAPTION VISION NOISE REDUCTION OFF ♦ RETURN Exit MONU

Press △+ or ▽ to select SET UP



MENU VIDEO SET UP CAPTION VISION NOISE REDUCTION OFF Use \$ PETURN Endt MENT

Press RETURN The SET UP menu appears

SET UP ON/OFF TIMER TAPE REMAIN T 120 CABLE OFF AUTO PROGRAM CH ERASE/ADD ise ♦ (ETLEN) Exit MEN VHF 2 13 UHF 14 69 Cable 1 125

To select TV channels without presetting Press 0-9 and ENTER

Receivable channels for this TV

To return to the normal screen Press MENU

To erase unnecessary channels, or to add channels that could not be preset automatically because their signal was too weak follow the steps in "Erasing Unnecessary Channels CHANNEL ERASE" and "Presetting Only Desired Channels CHANNEL ADD" (pp 15 17)

Note

If the VIDEO TV is in LINE mode you cannot select AUTO PROGRAM Press INPUT SELECT to change to TV mode

Press △+ or ▽ to select AUTO PROGRAM



SET UP ON/OFF TIMER TAPE REMAIN T 120 CLOCK SET AUTO PROGRAM > MENU

♦ RETURN Exit NAV

AUTO PROGRAM

Press RETURN



"AUTO PROGRAM" appears on the screen and receivable channels (other than the channels already preset) are preset in numerical sequence The channels previously preset will not remain in the TV's memory

When no more channels can be found the programming stops and the lowest numbered channel is displayed

 ∞

ULEEP JUMP

9

RETURN

TIMER ON SCRE

INDEX MARK ERASE

—**@≈**∞ –

RM-Y126

1 2 3

4 5 6

7 3

D SPLAY
O COUNTER VOIL
REMAIN
PARE
COUNTER VOIL
TAPE
SPECIO

Erasing Unnecessary Channels-CHANNEL ERASE

Use this feature to erase unnecessary TV channels so that when you press CH+/ the channel(s) are skipped

1 Press POWER on the VIDEO TV or the Remote Commander to turn the VIDEO TV on



8

2 Press MENU The main menu appears



MENU

VIDED
SET UP
CAPTION VISION
NOISE REDUCTION OFF

3 Press △+ or ▽ to select SET UP



MENU VIDEO
SET UP
CAPTION VISION
NOISE REDUCTION OFF

Press RETURN The SET UP menu appears



SET UP

4 Press △+ or ▽ to select SET UP



SET UP
ONOPFTIMER
TAPE REMAIN T 120
CLOCK SET
CABLE OFF
AUTO PROGRAM
CH ERASE/ADD
DMENU
USB \$ ETTER EXT MORE

1 Press RETURN
The CH ERASE/ADD screen appears and the cursor points to



CH ERASE/ADD 8

PEASE
ADD
MENU

Select the channel
Use \$ CETTER Exit UEAU

Note

If the VIDEO TV is in LINE mode you cannot select CHANNEL ERASE/ADD Press INPUT SELECT to change to TV mode

5 Press RETURN

A " " sign appears in front of the channel number display showing that the channel is erased from the channel scan memory



CH ERASE/ADD 8
ERASE
ADD

MENU

Use \$ TRUE Exit NEW

6 Press MENU



The next time you press the CH +/ buttons channel 8 will be skipped

To erase other channels Repeat steps 1 5

SLEEP JUMP

1 2

TIMER ON SCR

NCEX MARK ENASE

*** ***

-0 min ------

4 5 6

7 8 9

D SPLAY

D SPLAY

COUNTER

CH

RESST

AFE

SPEED

=0 =0 (3)

Presetting only Desired channels - CHANNEL ADD

Use this feature to add channels one by one to the channel scan memory

1 Press 0.9 and ENTER to select the channel you want to add For example to add channel 25, Press 2.5 and ENTER



2-4 (Follow steps 2 4 in 'Erasing Unnecessary Channels CHANNEL ERASE" pp 15 16)

Note

If the TV is in LINE mode you cannot select CH ERASE/ADD Press INPUT SELECT to change to TV mode

5 Press △+ or ▽ to select ADD





Press RETURN

A +" sign appears in front of the channel number display showing that the channel is added to the channel scan memory

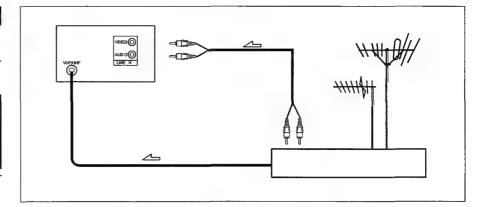




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Press MENU

To add other channels Repeat steps 1 6



- Remove the coaxial cable from your VIDEO TV and place it into the antenna terminal on the other audio/video source. Then connect a 75 ohm coaxial cable with F type connector (not supplied) to the VHF/UHF antenna terminal at the rear of VIDEO TV.
- 2 Remove the coaxial cable from your VIDEO TV and place it into the antenna terminal on the other audio/video source. Then connect a 75-ohm coaxial cable with F type connector (not supplied) to the VHF/UHF antenna terminal at the rear of VIDEO TV.

Notes

- Repeatedly press INPUT SELECT on the VIDEO TV or on the Remote Commander so that "LINE" appears on the screen
- To return to TV mode repeatedly press INPUT SELECT on the VIDEO TV or on the Remote Commander so that a channel number appears on the screen
- For operating instructions refer to the instruction manual furnished with the VCR
- If the picture or sound is affected, move the VCR away from the VIDEO TV

JUMP

(3)

9

ENTER

MENU

RETURN

2

7 8

© § (*)

MARK ERASE

*** ***

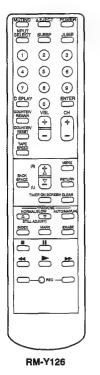
O≈ -

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<u>.</u>

4 5 6





1 Press POWER on the VIDEO TV or the Remote Commander to turn the TV on



2 Turn the cable mode on or off to select the type of channel you want to watch VHF/UHF or cable TV (Follow the steps in Turning the Cable Mode On or Off p12)

If "LINE" is displayed on the screen press INPUT SELECT on the Remote Commander so that the channel number appears

3 Select a channel in one of the following two ways

To scan the preset channels* in numerical sequence Press CH +/



and ENTER



* For more information on presetting channels see pp. 13.17

To select a channel directly
Press 0 9 and ENTER
For example, to select channel 14 press 1 4



▲ Press VOL +/ to adjust the volume



To turn off the TV
Press POWER on the TV or the
Remote Commander again

Press VOL + to increase the volume Press VOL to decrease the volume

Muting the Sound-MUTING

Press MUTING
The display 'MUTING will appear on the screen

To restore the sound Press MUTING again



Keeping the Displays On-Screen - DISPLAY

To display the channel Press DISPLAY

All the existing displays appear channel number date time VCR operating mode and tape counter



To cancel the display Press DISPLAY again

Press DISPLAY again
The display will disappear

Setting the Sleep Timer - SLEEP

Press SLEEP

Each time you press SLEEP the time increments 30 60 90 and OFF mode appear in sequence



SLEEP 30 SLEEP 60 SLEEP 90 SLEEP OFF

The SLEEP display appears about one minute before the TV turns off

To cancel the setting

Press SLEEP until OFF mode appears

The "SLEEP OFF" display appears for about three seconds OR

Turn the TV off

The sleep timer setting is cancelled

Switching Quickly Between Two Channels - JUMP

Press JUMP once to recall the channel you were watching previously Press JUMP again to switch back Use this feature to keep track of two programs alternately



SEE JUMP

(5) **①**

6

ENTER

MENU

RETURN

MARK

RM-Y126

ð

*

0 2 (3)

7 8 9

D SPLAY
COUNTERV
RESIDEN
COUNTERV
RESIDEN
APEL
BPEED) () ()

These adjustments are retained in memory even when you turn off the TV until you change the adjustments again

1 Press MENU

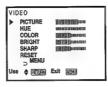
The main menu appears and the cursor points to VIDEO



VIDEO SET UP CAPTION VISION NOISE REDUCTION OFF Jse ♦ PETURN Exit NEW

Press RETURN The VIDEO menu appears





Press △+ or ▽ to select the item you want to adjust For example to adjust the picture color select COLOR





Press RETURN The adjustment bar appears





4 Press △+ or ▽ to make the adjustment





Increase color intensity





Decrease color intensity

Press RETURN The new setting appears in the VIDEO menu





To adjust other items Repeat steps 3 4

| | Press ▽ - to | Press △ + to |
|---------|---|--|
| PICTURE | decrease picture contrast with soft color | increase picture contrast with vivid color |
| HUE | make skin tones become purplish | make skin tones become greenish |
| COLOR | decrease color intensity | increase color intensity |
| BRIGHT | darken the picture | brighten the picture |
| SHARP | soften the picture | sharpen the picture |

mid level settings

Press MENU

level) setting

(5) (4)

) Ø Ø • I

MOEX MARK

0-0----

RM-Y126

To return to the normal screen

To restore the factory (mid-

Go to the VIDEO menu and

select RESET by pressing A+ All the settings except for PICTURE will be restored to

ER ON SCREEN OLEAR

6

ENTER

RETURN

ERASE

0 2 3

7 8 9

D SPLAY
COUNTERV
REMAIN
COUNTERV
RESSET
APE
SPEED

SLEEP JUMP

(8) (9)

ENTER

RETURN

() § () ()

MARK BRASE

O-0≈∞-C

RM-Y126

1 2 3

4 5 6

0

DISPLAY

CONTERN

CONTERN

CONTERN

RESSET

RE

•

4 5

1 Press MENU
The main menu appears, and the cursor points to VIDEO

You can reduce the picture noise on the screen in playback mode

MENU

MENU

VIDEO
SET UP
CAPTION VISION
NOISE REDUCTION OFF

Use \$ | REURR Exit | RENU

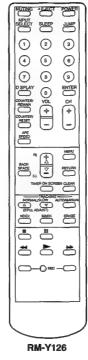
2 Press △+ or ▽ to select NOISE REDUCTION



3 Press RETURN then △+ or ▽ to select ON NOISE REDUCTION Indicator lights up



4 Press RETURN
The picture noise is reduced



The main menu appears

Press MENU



MENU

VIDEO
SET UP
CAPTION VISION
NOISE REDUCTION OFF

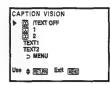
Use

VETEN Ext WENT

2 Press RETURN The VIDEO menu appears



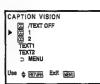




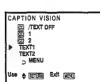
3 Press △+ or ▽ to select closed caption mode



Select CC1 or CC2 to view Captions
A Caption is a printed version of the dislogue
or sound effects of a program (The mode
should be set to CC1 for most programs)



Select TEXT1 or TEXT2 to view Text
Text is information that is presented using the half to full television screen
It is usually not related to the program



Select CC/TEXT OFF if you do not want to use the CAPTION VISION mode

Press RETURN
The Setting is completed



CAPTION VISION

Market of the property of the

Note

Captions may appear with

white box or another error instead of a certain word Poor reception of TV programs can also cause errors in Closed Caption

1-12. USING THE TIMER-ACTIVATED FUNCTIONS

Setting the Clock - CURRENT TIME SET

Follow these instructions to set the current time. The correct time must be set in order to use the other timer activated functions (ON/OFF TIMER)

Set the time to 11 30AM Friday on the 25th of February 1994

1 In main menu press △+ or ▽ to select SET UP

Then press RETURN

The SET UP screen appears





ON/OFF TIMER TAPE REMAIN T 120 CABLE ON AUTO PROGRAM CH ERASE/ADD > MENU RETURN Exit MENU

Press △+ or ▽ to select CLOCK SET



SET UP ON/OFF TIMER TAPE REMAIN T 120 CLOCK SET CABLE ON AUTO PROGRAM CH ERASE/ADD > MENU se 💠 RETURN Exit WEAL

Press RETURN The CLOCK SET screen appears



CLOCK > MENU

Use of PETURA Exit MENU

Press RETURN again 'Set the month" appears on the screen





RM-Y126

SLEEP LIMP

2 0

(8) 0

TIMER ON SCRE

MARK

*

0 6 6

D SPLAY
COUNTERV
REMAIN
COUNTERV
RESET

(3)

9

ENTER

RETURN

To change or correct the setting before completing it

4 Press △+ or ▽ to set the month Press BACK SPACE to return to the Each time you press △+ or ▽ the item to be erased month changes in sequence



SLEEP (2) \bigcirc (3) (5) 4 (6) 7 (8) (9) ⊙ § (+) I ENTER COLINTER REMAIN COUNTER RESET #PE | RETURN MARK <u>"</u> • * ₺ **─**-@≈---

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To display the time Press DISPLAY

To return to the normal screen Press MENU

Notes

The internal clock of this VIDEO TV operates on a 12 hour cycle

> 12 00 AM stands for midnight 12 00 PM stands for noon

All the settings including CLOCK will be erased if you unplug the VIDEO TV or a power failure occurs Reset the current time by following steps 1 8

If the ON/OFF TIMER or QUICK TIMER has been set you can not change the clock. To change the clock cancel the ON/OFF TIMER (P 29) or QUICK TIMER (P 41) first

Press RETURN

'Set the day" appears on the screen



CLOCK 2/1/ > MENU Set the day Use & RETURN Exit NEW

5 Press △+ or ▽ to set the day Each time you press △+ or ▽ the day changes consecutively



CLOCK 2/25/ FRI MENU Set the year

Use & FEURN Exit NEW

Press RETURN

Set the year appears on the screen

6 Press △+ or ▽ to set the year

Each time you press △+ or ▽ the year changes in sequence and the day of the week automatically changes

Press RETURN

Set the time appears on the screen

CLOCK 2/25/94 FRI 12 00AM > MENU Set the time Use ♦ PETURN Exit PENU

7 Press △+ or ▽ to set the hour

Each time you press \triangle + or ∇ the hour changes in sequence starting with

"12 00AM"

Press RETURN

2/25/94 FRI 11 00AM > MENU Set the time Use op RETURN Exit NEW

R Press △+ or ▽ to set the minute Each time you press \triangle + or ∇ the minute changes in sequence

Press RETURN

The setting is completed and the clock starts

CLOCK 2/25/94 FRI 11 30AM > MENU

Use \$ RETURN Exit MENU

SLEEP

NDEX MARK

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ENTER

CH +

MENU

RETURN

ERASE

① ② ③

(4) (5) (6)

7 8 9

Setting the ON/OFF TIMER

With this function you can set your favorite program to appear on the screen at the time that you set

EXAMPLE Set the timer to turn on the VIDEO TV every Monday through Friday at 3 15 PM for 2 hours on channel 21

1 Press MENU The main menu appears



MENU

VIDEO
SET UP
CAPTION VISION
NOISE REDUCTION OFF

Use \$ TETURA EXIT MERN

2 Press △+ or ▽ to select SET UP Then press RETURN The SET UP menu appears and the cursor points to ON/OFF TIMER





SET UP
ON/OFF TIMER
TAPE REMAIN T 120
CLOCK SET
CABLE ON
AUTO PROGRAM
CH ERASE/ADD
DMENU
Use \$ (ETIME) Exit (EDIS)

3 Press RETURN
The ON/OFF TIMER screen appears



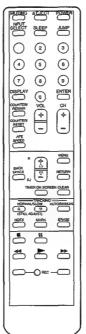


Notes

If the ON/OFF TIMER display does not function, the current time has not been set and you cannot select ON/OFF TIMER To set the clock see Setting the Clock CURRENT TIME SET pp 25 26

4 Press RETURN again
Set the day appears on the screen





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5 Press \triangle + or ∇ to set the day

Each time you press $\triangle +$ or ∇ the days of the week change as shown in Fig 1

Then press RETURN

"Set the time" appears on the screen





ON/OFF TIMER
EVERY MON-FRI
12 00AM h CH
D MENU

Set the time
Use
中 医顶板 Exit LEED

6 Press △+ or ▽ to set the hour that you want the TIMER to start Each time you press △+ or ▽ the hour changes in sequence Then press RETURN





ON/OFF TIMER
EVERY MON-FRI
3 00PM h CH
D MENU

Set the time Use \$ RETURNS Exit MENU

7 Press △+ or ▽ to set the minutes

Each time you press \triangle + or ∇ the minutes change in sequence Then press RETURN

Set the duration" appears on the screen





ON/OFF TIMER
EVERY MON FRI
3 15PM 1h CH
D MENU

Set the duration
Use \$ PETERS Exit WENU

8 Press △+ or ▽ to set the duration of time

Each time you press $\triangle +$ or ∇ the duration changes from "1" to

9 in sequence

Then press RETURN

"Select the channel" appears on the screen







► EVERY MON FRI
3 15PM 2h CH

⇒ MENU

Select the channel
Use ♦ ₹€€€€€ Exit (MENU)

ON/OFF TIMER

SLEEP JUMP

7 3

⊙ z (+)

★ ▼

MARK

*** * ***

○

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(9)

ENTER

RETURN

O 2 3

4 5 6

D SPLAY

COUNTER

<u>.</u> ...

9 Press △+ or ▽ to set the channel that you want the TV to tune in Each time you press △+ or ▽ the channel number changes in sequence



ON/OFF TIMER
EVERY MON FRI
3 1SPM 2h CH21
⊃ MENU

Select the channel
Use ♦ Eult

Press RETURN

The setting is completed and the ON/OFF TIMER indicator on the front of the VIDEO TV lights up



ON/OFF TIMER
EVERY MON FRI
3 15PM 2h CH21

→ → MENU

Use ← RETURN Exit DENI

Cancelling the ON/OFF TIMER

- Select the ON/OFF TIMER SCREEN (Refer to P 27)
 EVERY SUN SAT will be displayed in red
- Press BACK SPACE to erase the ON/OFF TIMER



To change or correct the setting before completing it Press BACK SPACE to return to the item to be erased

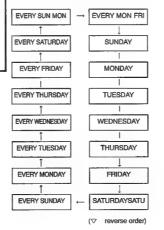
To return to the normal screen Press MENU

Notes

- One minute before the timer goes off, the TV will turn off" display will appear on the screen
- If you have not set the clock correctly, the ON/OFF TIMER will not operate at the proper time. To set the clock see Setting the Clock CURRENT TIME SET" pp 25 26
- All the settings including ON/OFF TIMER will be erased if you unplug the VIDEO TV or a power failure occurs Reset the TIMER by following steps 1 9

Fig 1 Selecting the day(s) of the week

When you press \triangle + the days of the week appear in the

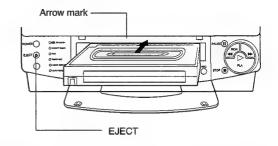


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inserting Video Cassette

Insert a video cassette with the arrow mark facing upwards



2 Gently press the center of the front side of the cassette until the mechanism draws it into the compartment.

When the cassette has been inserted, the particular lights and the VIDEO TV turns on automatically.

Note

When you insert a cassette without a safety tab playback starts automatically (AUTO PLAYBACK function)

Ejecting the cassette

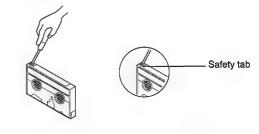
Press EJECT

You can also eject the cassette when the power is off

Protecting your cassette against accidental erasure

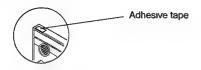
The cassette is provided with a safety tab to protect against accidental recording

Break off the safety tab with a screwdriver or other suitable tool If the safety tab is removed, the cassette will be ejected when you try to record on the cassette



PALY BACK

To record on a cassette with the safety tab broken off simply cover the tab hole with adhesive tape



Maximum recording time of a tape

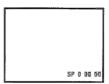
The quality of tape you use greatly affects record/playback quality and the life of the VIDEO TV Use only cassette tapes that have the official VHS logo

High grade tapes give the best results especially at the EP speed. They also have a better oxide coating that helps prevent dirty video heads. Although T 160 tapes offer the longest recording time, they contain thinner tape that is more likely to stretch or cause tape jams. We suggest that you use T 120 or shorter tapes.

Recording in the SP LP or EP mode is possible with this unit When recording select the desired recording mode (SP LP or EP) with TAPE SPEED on the Commander During playback the unit automatically detects the recording format, and then plays back the tape in the appropriate mode

The following chart shows the maximum recording times for T 60 $\,$ T 120 and T 160 tapes at the three recording speeds

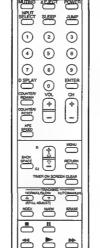
| Speed | T-60 | T-120 | T-160 |
|-------|---------------|---------------|---------------|
| SP | 1 Hour | 2 Hours | 2 2/3 Hours |
| | (60 Minutes) | (120 Minutes) | (160 Minutes) |
| LP | 2 Hours | 4 Hours | 5 1/3 Hours |
| | (120 Minutes) | (240 Minutes) | (320 Minutes) |
| EP | 3 Hours | 6 Hours | 8 Hours |
| | (180 Minutes) | (360 Minutes) | (480 Minutes) |





- 1 Insert a prerecorded cassette into the tape compartment. The VIDEO TV automatically turns on
- 2 If playback does not start press PLAY ▶ The tape plays back at the speed at which was recorded





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To stop playback

Press STOP ■

To stop playback for a moment Press PAUSE !!

II appears on the screen and image will stop (

To resume playback press PAUSE or PLAY

.

appears on the screen

When the tape is played back to the end

The tape is automatically rewound to the beginning (auto rewind) The power remains

•

To rewind the tape to its beginning and to playback automatically (Auto Playback Function)

Press AUTO REPEAT on the VIDEO TV during playback or stop mode The AUTO REPEAT indicator lights and until you press the button again to release AUTO REPEAT function the auto playback will continuously work

Variable Speed Playback

You can enjoy playing back pictures in variable speeds on the VCR

Still Picture

During playback mode press PAUSE ■ To resume normal playback press PLAY ▶ or PAUSE ■

Note .

- No sound accompanies the picture which may be unstable or have video "noise" in it. This is normal.
- . If the VCR is left in the pause mode for more than about 5 minutes

To advance the tape rapidly

While the tape is being played back pressing FAST FORWARD ▶ will move the tape forward at high speed so you can see the picture and choose where to stop When you do this [▶ ⊋appears on the screen

If you release the button the VCR will return to normal playback

When tape is not being played back and the VCR is in the stop mode pressing FAST FORWARD → winds the tape forward at very high speed without displaying the picture

When you do this _ appears on the screen

You can stop the forward running of the tape at any time by pressing STOP If during the operation the tape rewinds forward to the end the machine will automatically stop and then rewind the tape back to the beginning again

To rewind the tape rapidly

If you press REWIND/REVIEW ← while the tape is being played back you can play the tape backwards to find a particular spot. When you do this

[← appears on the screen and the tape will be rewound at very high speed.
At the end ■ appears on the screen and invite you to press PLAY ▶

Viewing TV Programs During Tape Playback

While a tape is being played you can switch to watching TV broadcasts Press STOP ■

The VIDEO TV returns to normal TV reception mode

Playing Back a tape recorded on another VCR

When playing back a tape recorded on another VCR there might be some picture noise

Tracking ensures that the tape is correctly aligned with the playback head it only works in the "playback" mode and its principle purpose is to minimize picture shake and what is called noise" (fuzzy lines across the picture during playback and still picture)

It is adjusted either automatically or manually

Automatic tracking adjustment function

When playback starts the auto tracking automatically adjusts the picture "AUTO TRACKING" flashes for 5 seconds

The automatic tracking control is activated in the following conditions

- . When the cassette is inserted for the first time
- When the recording mode on the playback tape is switched from SP to EP and back again
- . When the picture is distorted by scratches on the tape
- When TRACKING AUTO/MANUAL is pressed after the picture is adjusted manually

If auto tracking does not work, the tracking was probably last adjusted manually

Adjusting the tracking manually

When the playback picture proves to have streaks or snow during normal playback adjust the picture manually with TRACKING NORMAL/SLOW (STILL ADJUST)

Press either △ or ▽ to obtain the best possible picture. When playing back a tape recorded on another VCR, the tracking condition is automatically adjusted on this VCR.

Note

- Auto tracking adjustment may be impossible when the recording condition of the tape is poor
- · During auto tracking adjustment, streaks or noise may appear

[+4]

Using COUNTER/REMAIN

To display the counter press COUNTER /REMAIN once

The tape counter shows the tape travel time in hours minutes and seconds during recording or playback



Note

To see the remaining tape time during recording or playback press COUNTER/REMAIN twice
The remaining tape time appears with REM

REM 1 36

For seeing the remaining tape time first check the tape mode If you want to see the remaining tape time in T 120 press RETURN then △+ or ▽ until T 120 appears in TAPE REMAIN screen For OTHERS, press the button until OTHERS appears

Using Counter Memory Function

The counter memory makes it easy to return to a particular spot on the tape after recording or playback. The tape stops when the counter reaches SP 0 00 00. This feature is especially helpful when editing a recording

- 1 Press COUNTER/REMAIN to see the counter
- 2 Start recording or playback and press COUNTER RESET at the point you want to return to The counter displays SP 0 00 00

SP 0 00 00

- 3 Press STOP when you finish recording or playing the tape
- 4 Press REWIND/REVIEW ← The tape stops at SP 0 00 00
- 5 Press PLAY ▶ to play the tape

SLEEP JUMI

(2) 3

ENTER

MENU * 🚖

RETURN

NOEX MARK ERASE

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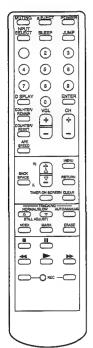
4 (5) (6)

7 (B) (9)

D SPLAY 0

COUNTED)× + **CH**

49% SPEED



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Recording TV Programs

Television programs films video tapes and other materials may be copyrighted Unauthorized recording of such material may be contrary to the provisions of the copyright laws. Also use of this recorder with cable television transmission and/or program owner

- Insert a cassette with the safety tab The VIDEO TV turns on automatically (Auto power on)
- Select the recording tape speed SP LP or EP with TAPE SPEED
- 3 Select the channel to be recorded with CHANNEL +/ or 0 9 buttons and ENTER
- ▲ Press the two REC buttons on the Commander at the same time or the REC button on the unit The REC indicator lights

To stop recording

Press STOP ■

Temporarily to stop recording at a particular point

Press PAUSE II to eliminate unwanted station breaks or program material while recording a TV program

REC II appears on the screen

To resume recording press PAUSE | again

When the recording pause mode lasts for more than approximately 5 minutes the unit enters the stop mode

Note

When the tape reaches its end

The tape rewinds to the beginning. The power will remain on

Recording a Program Without Watching the TV

Turn off the power of the TV

There will be no interference with the recording

You cannot watch another program while recording one program

You can preset up to six recordings up to one month in advance. The recordings can be preset with the Commander while referring to the TIMER SET/CHECK display on the screen

Before you begin check the following points

- · The date and clock must be set correctly (See Setting the Clock CURRENT TIME SET on pp 25 26)
- · Make sure that the cassette tape is long enough to record all the programs
- · Make sure that the safety tab on the cassette is not broken off

Recording from today to one month later

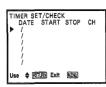
if today is August 31st you can set the timer to record a program broadcast between today and September 30 (for 31 days) If today is January 31st you can set the timer to record a program broadcast between today and February 28th (for 29days) A leap year is automatically considered

Setting the Timer

Example Suppose you want to record a program broadcast on channel 26 from 9 00 PM on Thursday March 10 in EP mode Note that 12 00 AM is midnight and 12 00 PM is noon

Press TIMER ON SCREEN The TIMER SET/CHECK menu appears





Press RETURN Make sure that today s date is flashing If not reset the correct time See Setting the Clock CURRENT TIME SET on pp 25 26





Note

During timer recording | STAND BY indicator flashes

TIMER RECORDING

3 Press △+ or ▽ to set the month and date to 3/10 THU The day of the week is automatically set





4 Press RETURN to flash the hours section under START" then △+ or ▽ until 9 PM appears







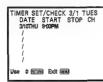
5 Press RETURN to flash the minute section under START then △ + or ▽ until 00 appears



2

0





6 Press RETURN
The hours section flashes under

The hours section flashes under STOP Set the turn off time referring to steps 4 and 5

TIMER SET/CHECK 3/1 TUES DATE START STOP CH START STOP CH START STOP CH





Press RETURN to flash the CH position then △+ or ▽ until 26 appears







Use 💠 🔞 🕅 Exit 🚳

8 Press RETURN to flash the recording speed position then △+ or ∇ until EP appears



Note

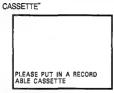




The following messages under each case appear on the screen

"PLEASE PUT IN A RECORDABLE

Notes



The AT (AUTO SPEED) mode starts recording at the SP speed but if it determines there isn't enough tape left to complete the programmed recording, it switches to the EP speed

Q Press RETURN to store the setting





10 After you finish programming press POWER to turn off the VIDEO TV The TIMER REC indicator lights

To change or correct the setting before completing it Press BACK SPACE to return to the item to be changed

To preset another program

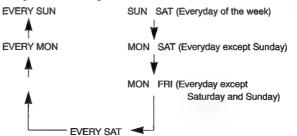
Move the cursor to the second line after step 9 and repeat steps 2 to 10

Daily/Weekly Recording

You can preset the timer activated recording to the same program everyday of the week (Daily recording) or one day of the week (Weekly recording)

Follow steps 1 through 2 in "Setting the Timer" on page 36 You can select the following programs

Each time you press ∇ the indication under "DATE" on screen changes in the following order



When switched to stand by mode for timer recording if a cassette is not inserted or ■ cassette without safety tab is inserted

- PLEASE PUSH POWER OFF TO SET TIMER
 When the VIDEO TV is still turned
 - When the VIDEO TV is still turned on before the timer recording starts or when SLEEP OFF time and TIMER REC START overlap
- "PLEASE STOP THE TAPE"
 When TIMER ON SCREEN is pressed at the same time the tape is being played back
- "VCR IS RECORDING"
 When PLAY FAST FORWARD
 REWIND /REVIEW EJECT CH
 +/ 0~ 9 buttons INPUT
 SELECT JUMP or MENU is
 pressed at the same time the
 timer recording is being done
- TIMER REC STARTS IN 5 MINUTES"

5 minutes before timer recording starts

 "PLEASE SET THE CLOCK FIRST"

When TIMER ON SCREEN is pressed in the condition the current time is not set

Preface 37

38 Preface

JUMP

COUNTER RESIDENT RESI

<u>‡</u>

MAPK

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RETURN

1 2 (3)

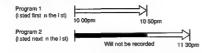
(4) (5) (6)

0 (8) 9

Recording TV Programs

if the turn-on time of two programs are the same

The program listed first on the TIMER SET/CHECK display has priority over the other programs. The timer recording of lower priority programs will be done from the point after program 1 is finished

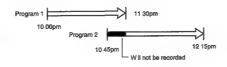


If the recording start time of program 2 is the same as the recording end time of program 1



If the recording start time of program 2 comes before recording of program 1 is over

The recording of program 2 will begin after program 1 is finished



Note

If a power interruption occurs

- · If a power interruption lasting less than approximately three hours occurs while the VCR is waiting for the preset time the VIDEO TV re enter the timer recording standby mode
- · If a power interruption lasting more than approximately three hours occurs before a timer recording the memory clears. Reset the date and time for timer recording
- · If a power interruption lasting less than approximately three hours occurs during a timer recording the VIDEO TV starts recording again

Checking the Timer Settings -

You can display all of the timer settings on the VIDEO TV screen to check the settings

Press TIMER ON SCREEN The TIMER SET/CHECK display appears



TIMER SET/CHECK 3/1 TUES
DATE START STOP CH

3/10THU 9-00AM 10:55AM 26EP
3/11FRI 1:00PM 2:15PM 10AT 3/4FRI 1:00PM 2:15PM 10SP MON-FRI 11:00AM 2:15PM 11SP SUN-SAT 11-00AM 2:15PM 25AT EVERY-SAT 11:00AM 2:15PM 25AT ♦ BILES Exit BEB

Note

The TIMER SET/CHECK display When a recording is set for only one day that setting is erased from the TIMER SET/CHECK display after the recording is over

Press TIMER ON SCREEN again to return to the original screen

Changing or Cancelling the Timer Settings

The timer settings can be changed or cancelled by referring to the TIMER SET/CHECK display

Press TIMER ON SCREEN TIMER SET/CHECK display appears



TIMER SET/CHECK 3/1 TUES
DATE START STOP CH
3/10THU 9:00AM 10:55AM 26EP
3/11FR 1:00PM 2:15PM 10AP
3/4FRI 1:00PM 2:15PM 10AP 3/11FRI 3/4FRI MON-FRI SUN-SAT 1:00PM 2:15PM 11:00AM 2:15PM 11:00AM 2:15PM les \$ FETTH Falt 190

2 Press \triangle + or ∇ to move the cursor to the program you wish to change or cancel



MER SET/CHECK 3/1 TUES
DATE START STOP CH
3/10THU 9:00AM 10:55AM 25EP
3/11FRI 1:00PM 2:15PM 103P
MON-FRI 1:00PM 2:15PM 10SP
MON-FRI 1:100AM 2:15PM 11SP SUN-SAT 11:00AM 2:15PM 25AT EVERY-SAT 11:00AM 2:15PM 25AT \$ RETURN Exit WELL

3 To change it flash the item to be changed by pressing BACK SPACE and make the required changes by pressing \triangle + or ∇



CLEAR



To cancel it move the cursor to the item to be cancelled by pressing △+ or ▽ then press CLEAR

Press TIMER ON SCREEN to return to the original screen

SLEEP

(6)

ENTER

CH

MENU

RETURN

WARK

-

RM-Y126

1 2 (3)

4 (5)

7 8 (9)

D SPLAN
COUNTER REMAIN
COUNTER RESET
APER
SACED \$\$\$\$

same time

the step 4

To extend the Quick Timer

Recording time press LENGTH

to advance the recording time in

. If you try the Quick Timer

Recording immediately without

setting the start time delete

· If the tape runs out during

Quick Timer Recording

recording will stop and the

power goes off The tape will

· If a power interruption occurs

during Quick Timer Recording

recording will stop and the

power goes off If the power

interruption lasts less than

three hours and the power is

restored before the recording

end time recording will start

again from that point

not rewind automatically

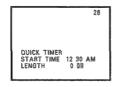
Notes

This function is convenient when for example you want to set the VCR to start recording immediately without going through the whole timer setting procedure

Notes

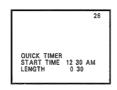
- · Make sure that the clock is set correctly before you activate Quick Timer Recording
- · During Quick Timer Recording you cannot change the channel on the VIDEO TV
- 1 Insert a cassette The VIDEO TV automatically turns on
- Press INPUT SELECT so that a channel number appears Press TAPE SPEED to select the recording speed SP LP or EP
- 3 Select the desired channel number with the 0 9 buttons and ENTER or CHANNEL +/ if you try to select the Cable TV channel first set CABLE to ON in SET UP menu
- ▲ Repeatedly press START on the front panel to preset the start time





Press LENGTH on the front panel to set the recording time which appears on the screen Each time you press LENGTH the time length advances in 30





Press POWER to turn off the VIDEO TV

minute increments up to 9 hours

The VCR turns on at the preset time and starts recording then stops at the preset time

INDEX signal marks on the tape let you scan through the start of different programs or search for a specific section of tape

Marking INDEX Signals

Automatic INDEX mark

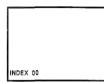
An INDEX signal is automatically marked at the beginning of recording



Manual INDEX mark

INDEX signals can be marked at any desired point during any recording or normal playback

Press INDEX once INDEX 00 appears



Then press MARK at the point where you want to mark INDEX signal INDEX MARK appears on the screen

Note

changes

- · Leave an interval of more than 2 minutes between INDEX signals when marking them one after the other so that the VCR can detect them correctly
- While an INDEX signal is being marked during playback, the recorded sound will not be heard but it will not be erased
- You cannot mark an INDEX signal in the following cases On a tape without safety tab On an unrecorded portion of a tape Immediately before a point on the tape where the tape speed

1 2 (3)

(4) (5) (B)

0 8 9

○§(-)-1 SPLA SPLA SUNTER SOUNTER SPEED

RM-Y126

4

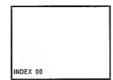
Playing Back from the INDEX Point

The beginning of each program can be found and played back by using the INDEX signals

Insert a cassette with INDEX signals

2 Press INDEX once during playback INDEX 00 appears on the screen





3 Press either FAST FORWARD → or REWIND/REVIEW ← to start the INDEX scan The tape rewinds or rapidly advances to the next marked signal

The tape plays back for about 5 seconds then rewinds or rapidly advances to the next INDEX signal Each time INDEX signal is detected and playback begins the INDEX scan number (INDEX SCAN 04) appears



■ When the desired program is detected press PLAY
■ Playback starts from that point

Locating the Desired Program (INDEX Search)

A particular program can be located and played back by designating how many INDEX signals ahead or behind that program is from the current position

1 Insert a cassette with INDEX signals

2 Press INDEX INDEX 00 appears





3 Using the 0.9 buttons enter the number of INDEX signals you want For example if the tape is at INDEX 02 and you want to locate INDEX 05, press 0 3

Press either FAST FORWARD ▶ or REWIND /REVIEW ◀ INDEX SEARCH03 appears on the screen When the desired signal is found playback begins automatically



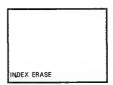
Erasing INDEX Signals

You can erase unnecessary INDEX signals

Press INDEX during playback INDEX 00 appears

2 Press INDEX during playback INDEX 00 appears





3 Press either FAST FORWARD → or REWIND/REVIEW ← The first subsequent INDEX signal is erased and the tape begins playback

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Preface

Note

While INDEX signal is being erased the recorded sound is temporarily muted

1-16. TROUBLESHOOTING

If you have a problem with the VIDEO TV, first check the power cord connection then go through the following list. Should the difficulty persist, unplug the unit, and contact your Sony dealer or local authorised. Sony service facility

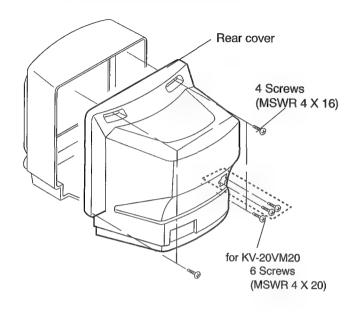
VIDEO TV RECEPTION

| Sysmptoms | Suggestions |
|--------------------------------|---|
| No picture or sound | Make sure the unit is plugged into a working AC outlet Check that POWER is set to ON Check the antenna wires, connections and direction |
| Picture OK sound poor | ● Adjust the sound |
| Sound OK, no picture | Try another channel Adjust the picture |
| Picture weak or blurred | Check the antenna wires, connections and direction Adjust picture control |
| Picture rools vertically | Check the antenna wires, connections and direction |
| Ghosts (multiple images) | Check the antenna wires, connections and direction Install a directional antenna |
| Wrong color or no color | Adjust picture controls |
| No response to button pressing | Press the buttons again carefully again. Unplug the set then plug it in and try again. |
| No response to remote control | Check the polarity (+ and) of the batteries Replace the batteries |

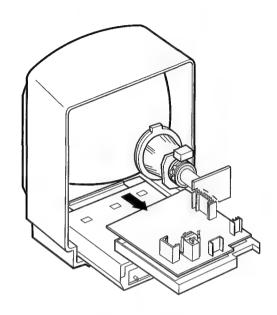


SECTION 2 DISASSEMBLY

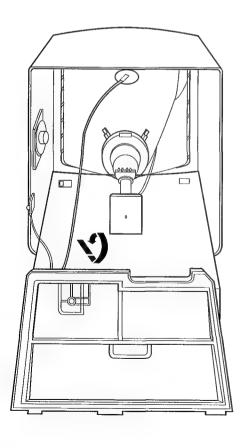
2-1. REAR COVER REMOVAL



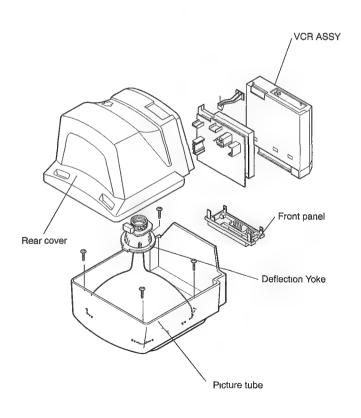
2-2.CHASSIS ASSY REMOVAL



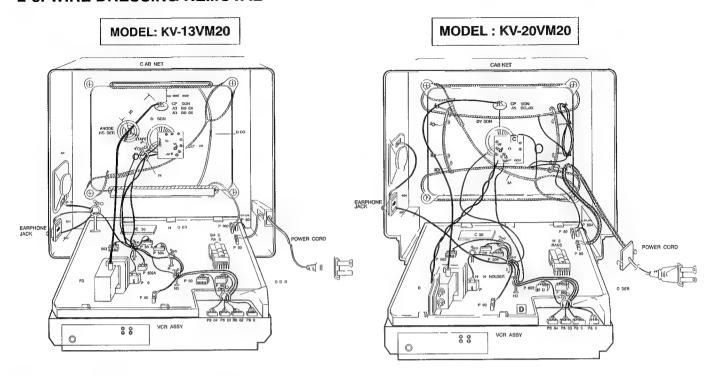
2-3. SERVICE POSITION



2-4. PICTURE TUBE REMOVAL



2-5. WIRE DRESSING REMOVAL



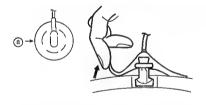
REMOVAL OF ANODE-CAP

NOTE Short circuit the anode of the picture tube and anode cap to the metal chassis, CRT shield or carbon painted on the CRT, after removing the anode

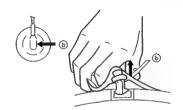
CAUTION Anode-cap must be removed after discharge



REMOVING PROCEDURES



Turn up one side of the rubber cap in the direction indicated by the arrow
 a



② Using a thumb, pull up the rubber cap firmly in the direction indicated by the arrow (b)



When one side of the rubber cap is separated from the anode button, the anode-cap can be removed by turning up the rubber cap and pulling it up in the direction of the arrow ©

HOW TO HANDLE AN ANODE-CAP

- ① Don't hurt the surface of anode-caps with sharp objects
- ② Don't press the rubber or you will hurt the inside of the anode-cap A material fitting called as shatter-hook terminal is built in the rubber
- ③ Don't turn the foot of rubber over hardly! The shatter-hook terminal will stick out or hurt the rubber





SECTION 3 SET-UP ADJUSTMENTS

- The following adjustments should be made when a complete re-alignment is required or a new picture tube is installed
- These adjustments should be performed with rated power supply voltage unless otherwise noted

The controls and switches should be set as follows unless otherwise noted

Standard Picture condition

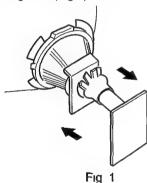
| ~ PICTURE | 80% |
|-----------|-----|
| BRIGHT | 50% |
| HUE | 50% |
| COLOR | 50% |
| SHARPNESS | 50% |

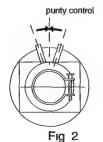
Preperation:

- Input a white signal
- Before starting, degauss the entire screen

3-1. BEAM LANDING

- 1 Input a raster signal with the pattern generator
- 2 Loosen the deflection yoke mounting screw, and set the purity control to the center as shown in Fig 2
- 3 Input a green raster
- 4 Move the deflection yoke backward, and adjust with the purity control so that green is in the center and red and blue are at the sides evenly (Fig 3)
- 5 Move the deflection yoke forward, and adjust so that the entire screen becomes green (Fig 1)
- 6 Switch the raster signal to red and blue and confirm the condition
- 7 When the position of the deflection yoke is determined, tighen it with the deflection yoke mounting screw
- 8 When landing at the corner is not right, adjust by using the disk magnets (Fig 4)





Perform the adjustments in order as follows

- 1 Beam Landing
- 2 Convergence
- 3 Focus
- 4 H- line and White Balance

Note: Test Equipment Required

- 1 Color bar Pattern Generator
- 2 Degausser
- 3 DC Power Supply
- 4 Digital multimeter

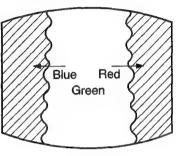
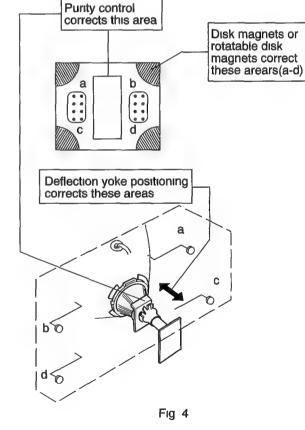


Fig 3



3-2. CONVERGENCE

Preperation:

- Before starting, perform FOCUS, H.SIZE, V.LIN and V.SIZE adjustments.
- Set BRIGHTNESS control to minimum.
- Input a dot signal.

(1) Horizontal and Vertical Static Convergence

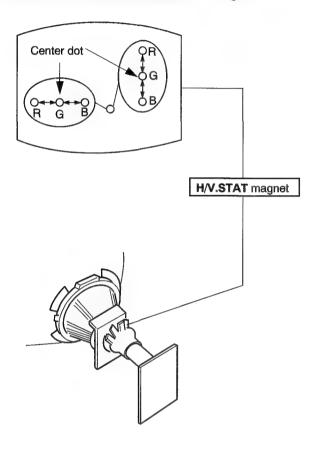
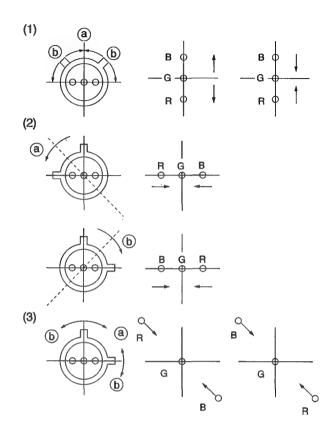


Fig. 5

 Tilt The H/V.STAT magnet and adjust static convergence to open or close the H/V.STAT magnet.



 When the H/V.STAT magnet is move in the direction of arrow (a) and (b), red, green and blue dots move as shown below.



If the blue dot does not cover with red and green dots, refer to Fig 6 perform the following steps.

- 1. Move BMC magnet (a) to correct insufficient H. static convergence.
- 2.Rotate BMC magnet (b) to correct insufficient V.static convergence.

In either case, repeat Beam Landing Adjustment.

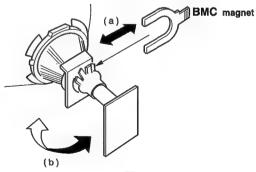


Fig. 6

(3) Screen-corner Convergence

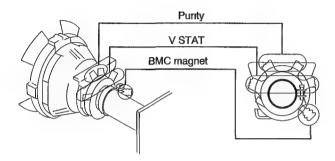
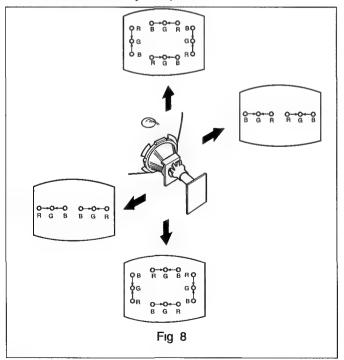


Fig 7



- Before starting, perform Horizontal and Vertical static convergence Adjustment
- 1 Slightly loosen deflection yoke screw
- 2 Remove deflection yoke spacers
- 3 Move the deflection yoke for best convergence as shown below
- 4 Tighten the deflection yoke screw
- 5 Install the deflection yoke spacers



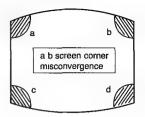
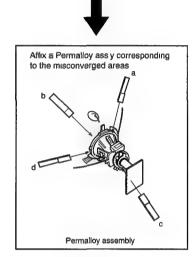


Fig 9



3-3. FOCUS ADJUSTMENT

- Input Cross Hatch Pattern.
- Turn the focus control (VR1907) on the C board to obtain the best focus in the center and circumference.

3-4. SCREEN (G2)

- 1. Input a dots pattern.
- 2. Set the PICTURE, BRIGHT controls at minimum.
- 3. Supply DC 160V by equipment into R.G. and B cathode.
- 4. Adjust VR1908 (SCREEN) so that the raster is invisible.

3-5. WHITE BALANCE ADJUSTMENT

- 1. Input a all white signal.
- 2. Set the PICTURE to minimum and set the BRIGHT at normal.(Refer to P.12 of this manual for the adjustment.)
- Turn VR1901(R.DRIVE) and VR1902(B.DRIVE) fully clockwise.
- 4. Adjust BIAS controls for best white balance.
- Set the PICTURE control to maximum. Observe the screen and adjust the DRIVE controls for best white balance.
- 6. Repeat steps 4 and 5.

SECTION 4 SAFETY RELATED CHECK

4-1. CIRCUIT CHECK FOR SAFETY

- 1) Input the color bar signal
- Connect a 1/2W, 470K resistor between Q1814-B of D board and GND (J90)
- 3) As soon as connecting the external resistor, the receiver stops operating (power relay off) And removing the external resistor, the receiver operates normally when plug in the AC POWER CORD after plugging it out

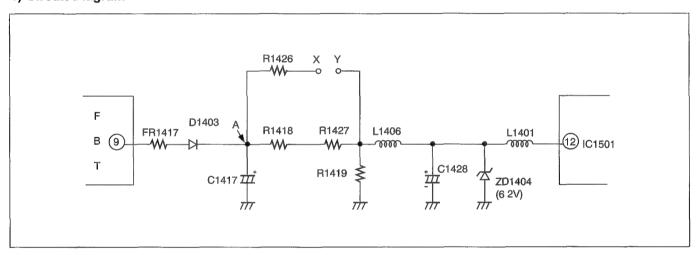
4-2. VERTICAL SHORT CIRCUIT CHECK

- 1) Input the color bar signal
- 2) Short both terminals C1311 from outside
- As soon as shorting C1311, the receiver stops operating And removing the external short, the receiver operates normally

4-3. HOLD-DOWN CHECK

This procedure should always be performed when replacing the following components (marked with **□** on the Schematic Diagram) ; IC1501, L1406, ZD1404, T1402, DY

1) Circuit Diagram



2) Circuit operating explanation.

Normal condition

DC voltage appears at point X from FBT pulse by rectifying circuit consisted of FR1417, D1403, and C1417 DC voltage of point Y is divided into R1418, R1427, R1419 from DC voltage of point A

In normal condition, DC voltage of point Y is lower than 6 0 volt

So the set is operated normally

Abnormal Condition

In abnormal condition, DC voltage of point X increase in proportion up to 6 0 volt

Therefore, the hold down circuit is operated in result, the horizontal frequency is stopped

3) Check the X-Ray protection circuit.

- Turn on the set and connect the color bar signal at the antenna terminal
- b Check the B+ voltage whether it is correct or not
- c If B+ is incorrect, power circuit is to be repaired
- d To check the operation of hold down circuit, short points X and Y
- Identify the screen status whether raster is appeared or not

- f If there is distorted synchronism of screen, the set is OK
- q Remove the shorted jumper from points X and Y

4) Troubleshooting the Hold-Down circuit.

Shorting points Xand Y, check the voltage of point Y

- If the voltage is below 6 0V DC, check ZD1404, C1428, L1406, R1419, FR1417, and D1403 and replace defective one
- If the voltage is over 6 0V DC, check L1401, IC1501 and replace defective one

SECTION 5 CIRCUIT ADJUSTMENT

5-1. H-LINE ADJUSTMENT

1) Preliminary Steps

- Input the standard White Signal.
- Set screen to standard condition.
- Set the red and blue driver (VR1901, 1902) to the mechanical center.
- Set the Bias controls (VR1903, 1904, 1905) to the mechanical a third position. (Min.-Max.)
- Make H-line by setting SW1201 to the center position.

2) Adjustment

- Turn the Screen control counterclockwise until the first horizontal line appears in the picture screen.
- Adjust two color bias controls for the colors which do not appear in the horizontal line so that the horizontal line becomes white.
- In state of the horizontal line is white, adjust screen volume so that the brightness of H-LINE become 0.3ft-L or so.
- Adjust SW1201 to the first position for the screen to appear.

5-2. H-CENTER ADJUSTMENT

- Input the color bar signal.
- Set screen to the standard condition.
- Set the horizontal-center control VR1401 so that right side and left side of the picture are equal. (horizontal center)

5-3. V-SIZE & V-CENTER ADJUSTMENT

- Input the Color bar signal.
- Set screen to normal position.
- Set screen to center of CRT by converting SW1301.
- Adjust the vertical size (VR1301) for approximately 1/2" overscan at the top and bottom of the display.

5-4. SUB-BRIGHT ADJUSTMENT

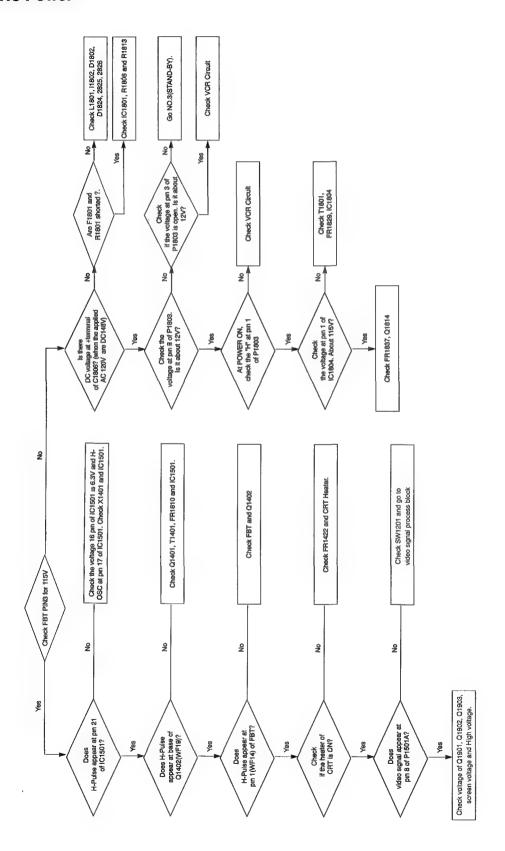
- Input the color bar signal.
- Push the MENU Key of the remote commander.
- Adjust VR1201 so that the step 3 and 4 are differentiated of sub-bright of pattern.
- Push the MENU Key of the remote commander again that the picture goes back to normal.

5-5. AGC ADJUSTMENT

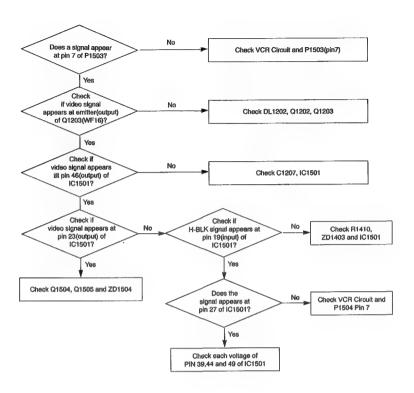
- 1. Input the color-bar signal.
- Adjust AGC VR of TU101 so that snow noise and crossmodulation disappear from the picture.
- 3. Confirm them at every channel.

SECTION 6 TROUBLESHOOTING CHARTS

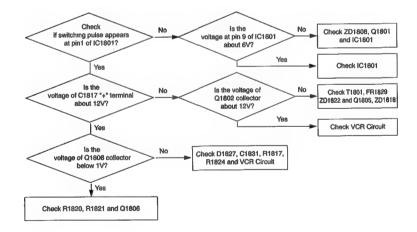
1. No Power



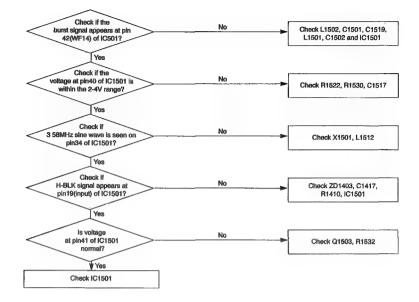
2. Video Signal Peocessing



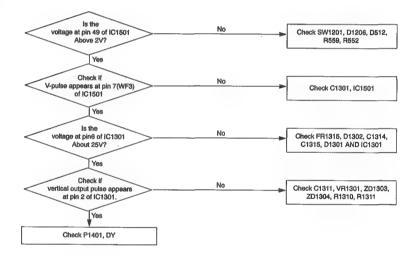
3. Stand-By



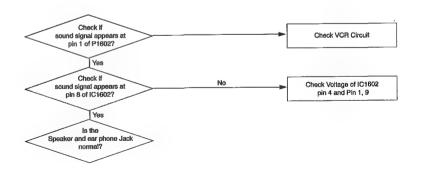
4. No Color



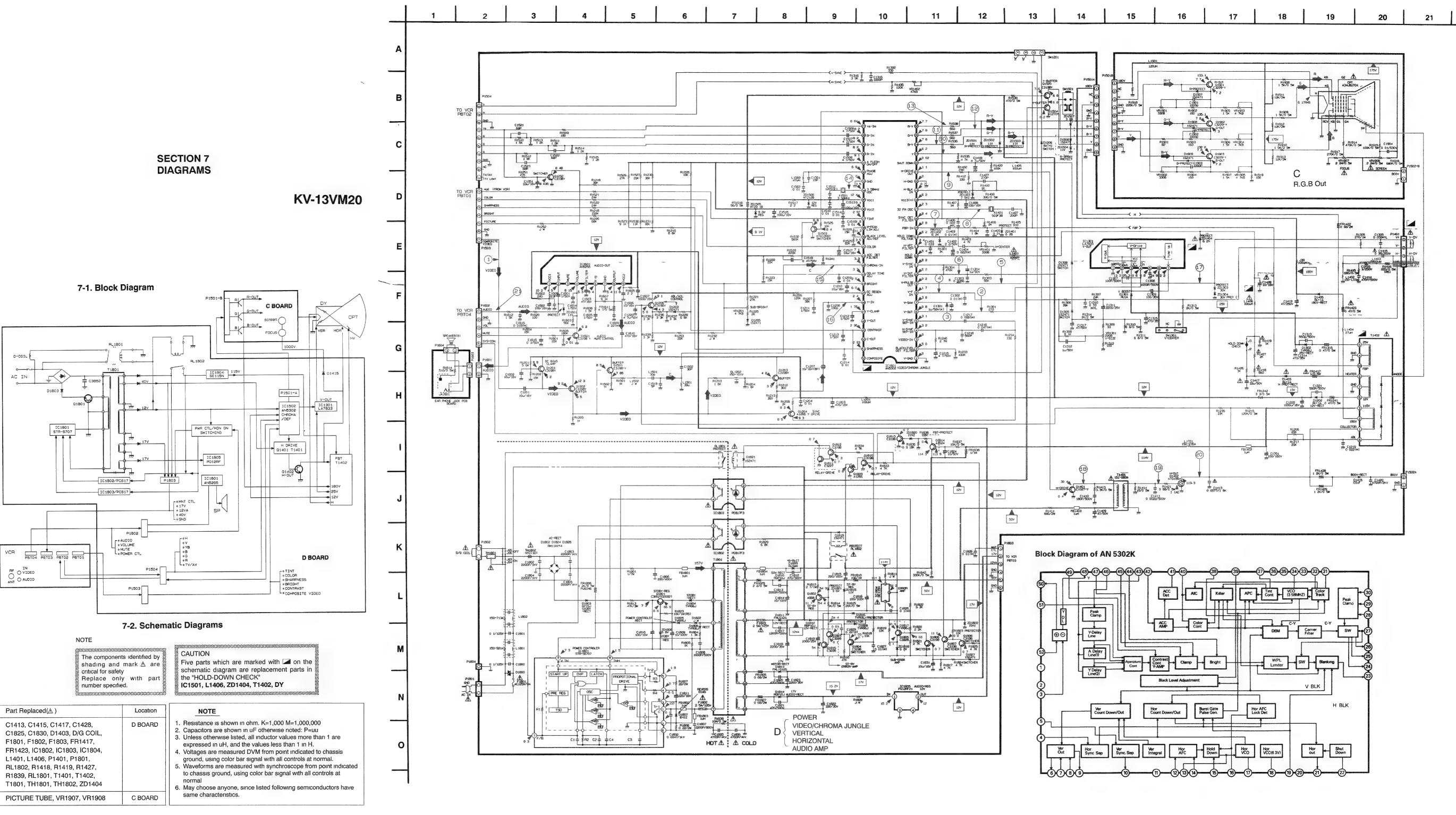
5. Vertical Parts

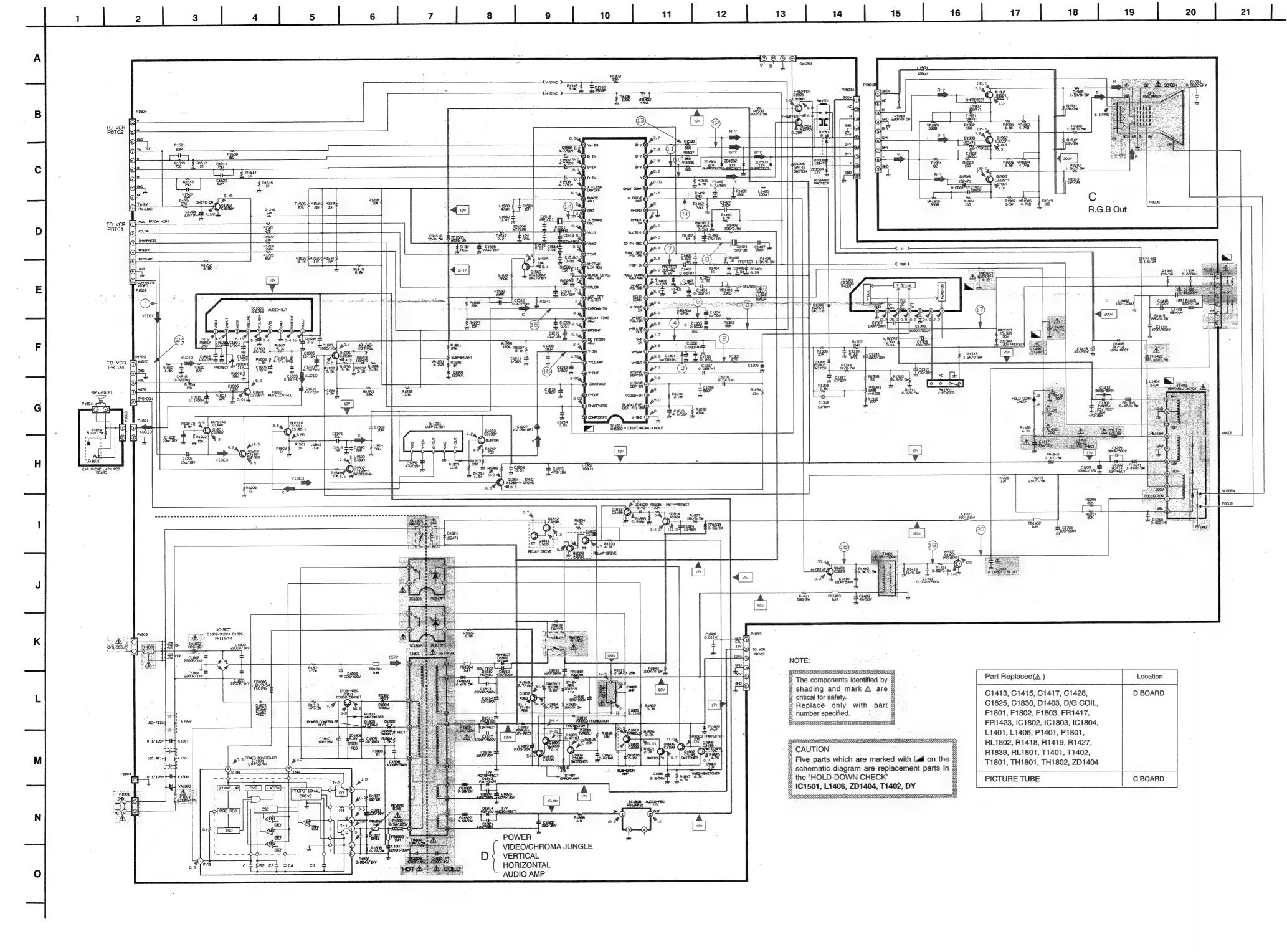


6. No Sound



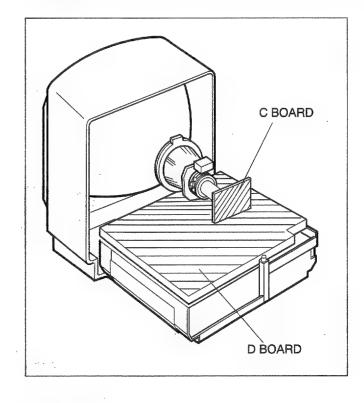
MEMO



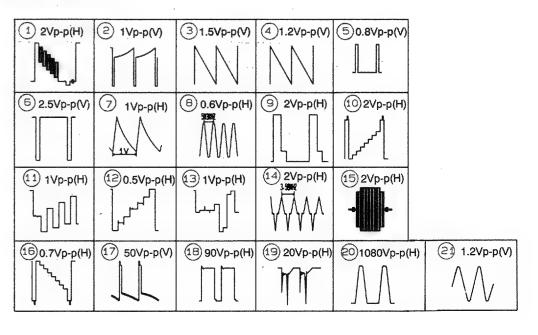


KV-20VM20

7-3. CIRCUIT BOARDS LOCATION AND PRINTED WIRING BOARDS



WAVEFORM

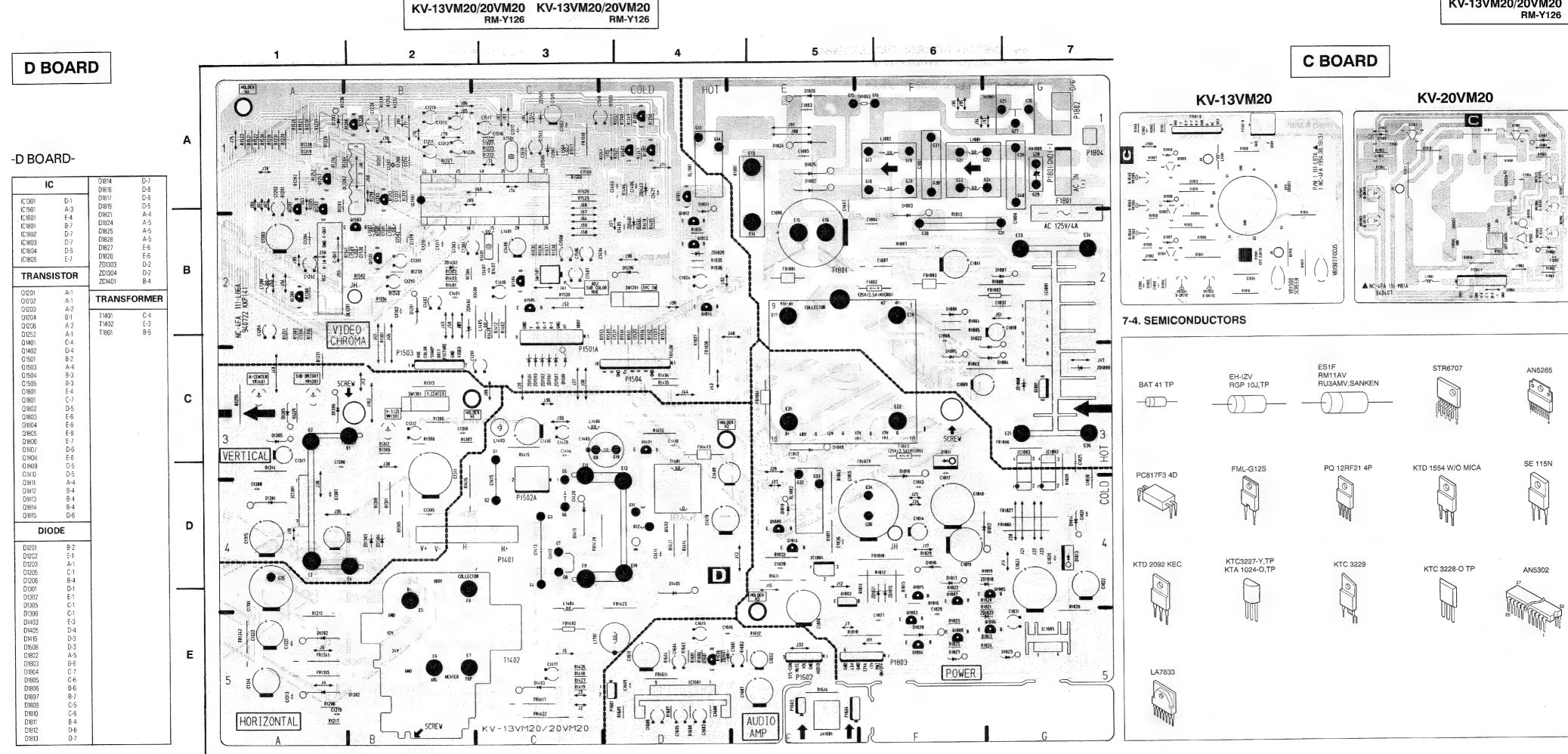


- 40 -

- 41 -

- 42 -

- 43 -



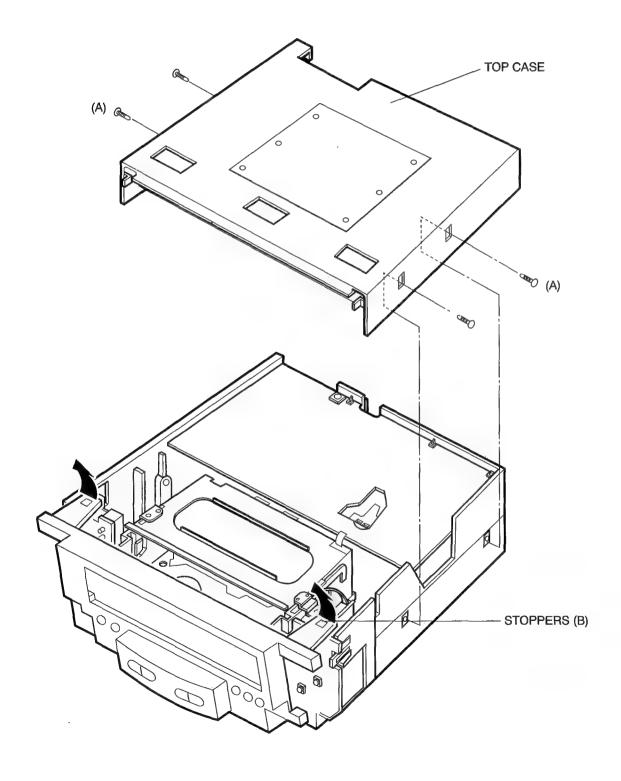
- 44 -

VIDEO

SECTION 8 DISASSEMBLY

8-1. CASING & FRONT PANEL DISASSEMBLY

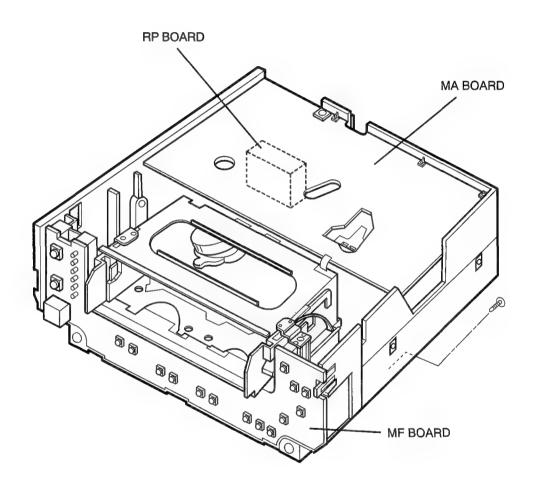
- Remove the top of case by removing 4 screws (A) on the main frame.
 Pull the stoppres (B) in the direction of the arrow and then separate front panel from main frame.



8-2. CIRCUIT BOARDS DISASSEMBLY

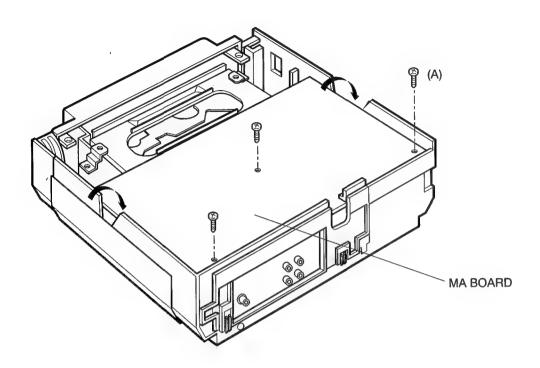
Remove the top case and bottom cover.

8-2-1. Circuit Boards Arrangement

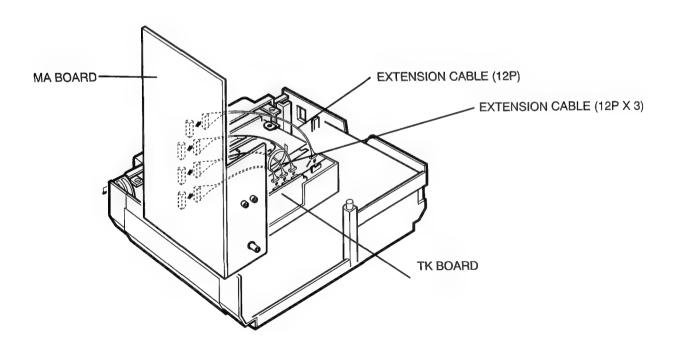


8-2-2. MA Board

Remove 3 screws(A) and then separate the main frame and MA board.

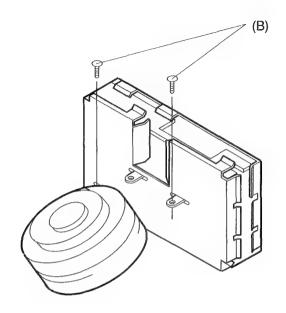


8-2-3. Service position



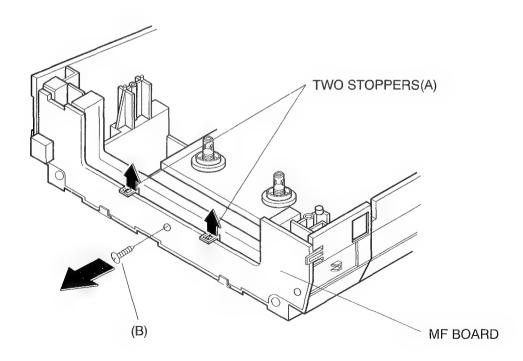
8-2-4. RP Board

- 1) Remove two screws (B) for disassembling the shield case
- 2) Remove a connector assembled with the drum assy from PC Board.



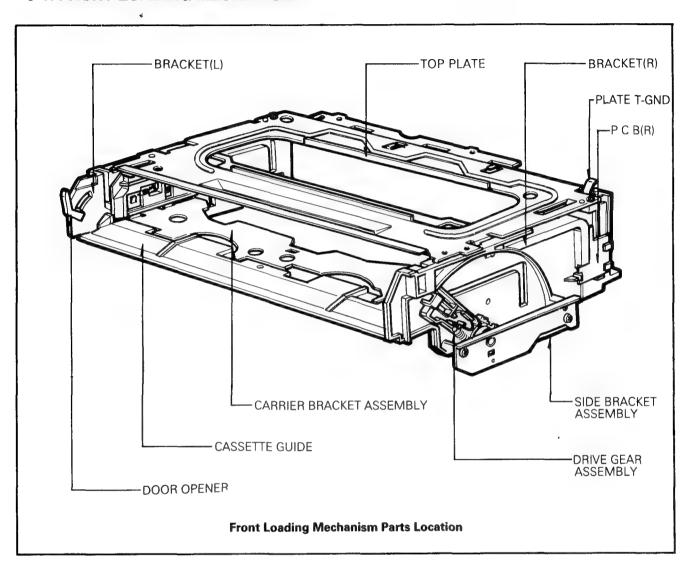
8-2-5. MF Board

- 1) Remove screw (B) and then separate the main frame and MF board
- 2) Pull the P.C.Board toward you while lifting two stoppers(A) in the direction of the small arrows to disengage, and remove the P.C.Board
- 3) Unplug the connector for complete removal.



SECTION 9 DISASSEMBLY INSTRUCTIONS

9-1. FRONT LOADING MECHANISM



- Component list below will be discribed as if the top and bottom covers and the front panel have already been removed
- 2 P.C.B Assembly
- 3 Top Plate
- 4 Carrier Bracket Assembly

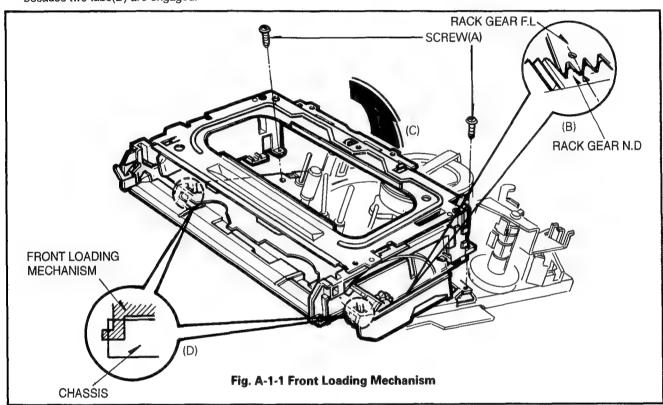
- 5 Cassette Guide
- 6 Side Bracket Assembly
- 7 Bracket(L), (R)
- 8 Door Opener
- 9 Drive Gear Assembly

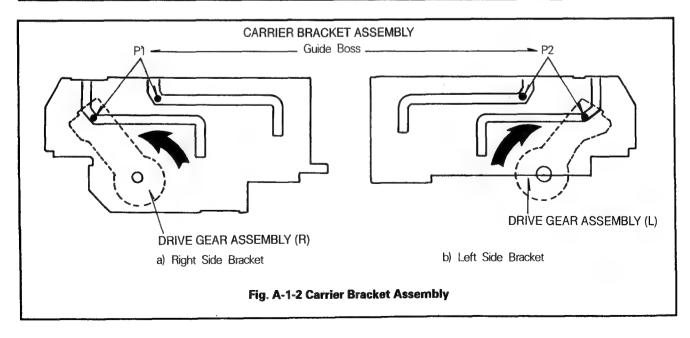
1. Front Loading Mechanism Assembly (Fig. A-1-1)

- 1) Remove the Top and Bottom Covers and the Front panel.
- 2) Unplug the connector.
- 3) Remove two screws(A)
- Lift up the Front Loading Mechanism in the direction of arrow(C)

* NOTE

- 1) When disassembling and reassembling
- ① Give special attention to removal and to reassemble, because two tabs(D) are engaged.
- ② Make sure that Bosses of Bracket(L),(R) are properly engaged in the holes of the chassis
- ③ To reassemble Front Loading Mechanism, the Drive Gear Assembly should be turned in a counterclockwise as shown in Fig A-1-2 so that the Rack Gear N.D of Front Loading Mechanism Assembly is meshed into Rack Gear F L of Deck Mechanism Assembly correctly as shown in Fig A-1-1.(B).





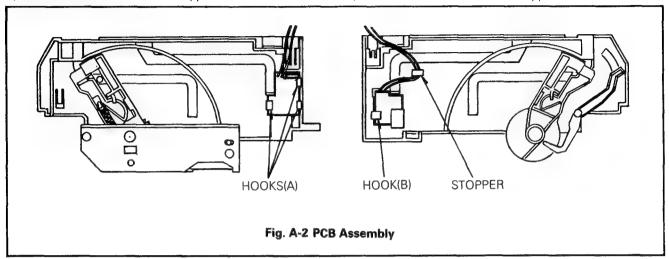
2. PCB(Printed Circuit Board) Assembly

2-1. P.C.B Assembly(R)(Fig. A-2)

- Remove the PCB Assembly(R) by pushing three Hooks (A) outward
- 2) Release the Lead wire from stoppers

2-2. PCB Assembly(L).(Fig. A-2)

- Remove the PCB Assembly(L) by pushing the Hook(B) outward
- 2) Release the Lead Wire from stoppers

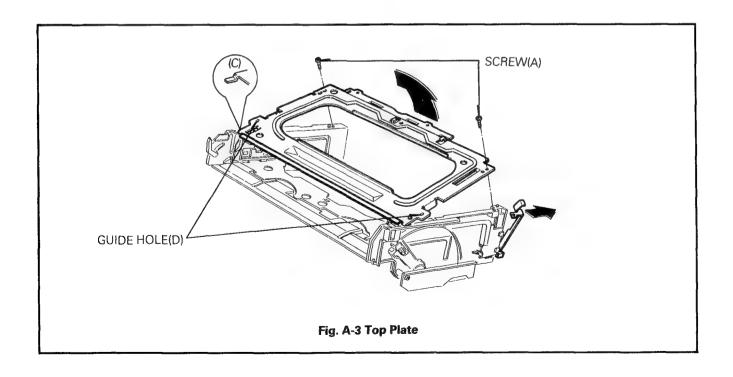


3. Top Plate(Fig. A-3)

- 1) Remove two screws(A)
- 2) Push the upper part of Top plate Ground and then lift up the Top Plate in the direction of arrow(B).

* NOTE

- When reassembling, be certain that the tabs(C) of Top Plate is in both Bracket(L),(R)
- Then align the guide holes(D) of Top Plate with Bosses of side Bracket(L),(R)



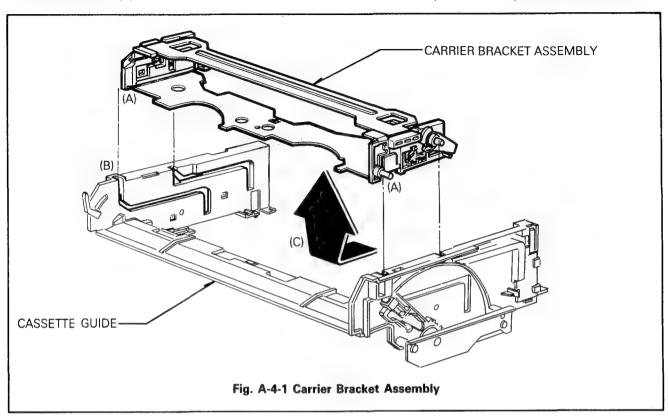
4. Carrier Bracket Assembly

4-1. Carrier Bracket Assembly(Fig. A-4-1)

1) Remove the Carrier Bracket Assembly by moving it in the direction of arrow(C).

* NOTE

1) When reassembling, be sure that parts(A) of Carrier Bracket Assembly are seated in parts(B) of Bracket(L),(R)



4-2. Cassette Opener(Fig. A-4-2)

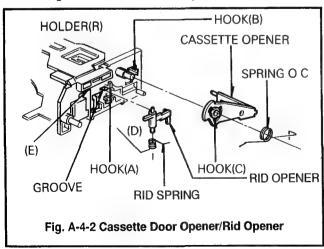
- Release the spring O C from the Hook(A) and then release it from Hook(C) of cassette opener.
- Remove the cassette opener by releasing the Hook(B) from the Holder(R)

4-3. Rid Opener(Fig. A-4-2)

1) Remove the rid opener by pushing it outward.

* NOTE

 When reassembling, seat the upper part of the rid opener in the grooved of Holder(R) and push it inward

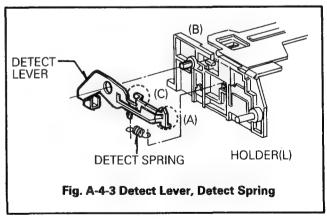


4-4. Detect Lever and Detect Spring

- 1) Remove the spring detect
- Lower the side(A) of Detect Lever and then remove the Detect Lever by pushing it outward

* NOTE

 When reassembling, make sure that the part(C) of Detect Lever set in the part(B) of Holder(R)

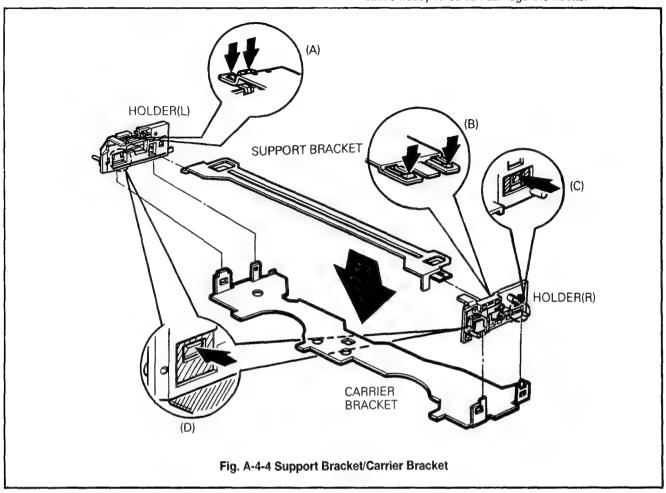


4-5. Support Bracket Assembly(Fig. A-4-4)

1) Take the Support Bracket out by releasing hooks(A),(B)

* NOTE

1) When disassembling and reassembling, be careful because heavy force can damage the hooks.



4-6. Carrier Bracket Assembly(Fig. A-4-4)

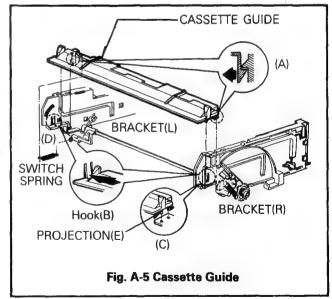
1) Remove the Carrier Bracket by releasing hooks(C),(D)

5. Cassette Guide(Fig. A-5)

- Remove the Switch Spring with the Front Loading Mechanism Assembly turned over
- 2) Push two hooks(B) outward
- Remove the Cassette Guide by pushing two hooks(A) outward(if one is removed, the other will be easy to remove)

* NOTE

- 1) When reassembling
- ① Seat projections(E) of Cassette Guide in holes of Bracket Assembly(L),(R) and then engage the Hook(A).
- ② After finishing previous step, fix the Cassette Guide to the Bracket Assembly(L),(R) by pushing two hooks(B) inward

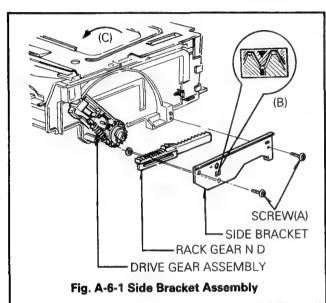


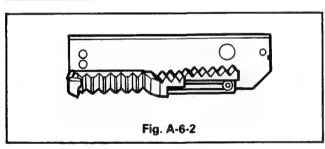
6. Bracket Assembly Side (Fig. A-6-1)

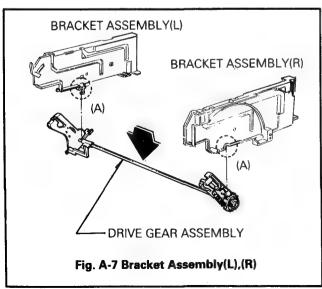
 Remove two screws(A) and then remove the Side Bracket Assembly and the Rack Gear N.D.

* NOTE

- 1) When reassembling
- Turn the Drive Gear Assembly in the direction of arrow
 (C)
- ② Reassemble the Rack Gear N D to the Side Bracket Assembly, as shown in Fig. A-6-2, and then reassemble







it to the Bracket Assembly(L), This time the Assembling Figure should be the same as(B) at the rectangular hole of Bracket Side

7. Bracket Assembly(L),(R)(Fig. A-7)

 Seperate the Bracket Assembly(L),(R) from the Gear Assembly Drive

* NOTE

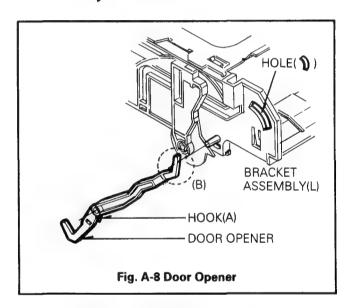
When reassembling, seat the shaft in the part(A) of Bracket Assembly(L),(R)

8. Door Opener(Fig. A-8)

1) Remove the Door Opener by pushing Hook(A) outward

* NOTE

1) When reassembling, seat the part(B) of Door Opener in the hole() of Bracket(L)



9. Drive Gear Assembly

9-1. Drive Gear Assembly(Fig. A-9-1)

 Remove the Drive Gear Assembly from the Bracket Assembly(L),(R)

9-2. Cushion Spring(Fig. A-9-1)

1) Remove the cushion spring from the Gear R

9-3. Cap-D(Fig. A-9-1)

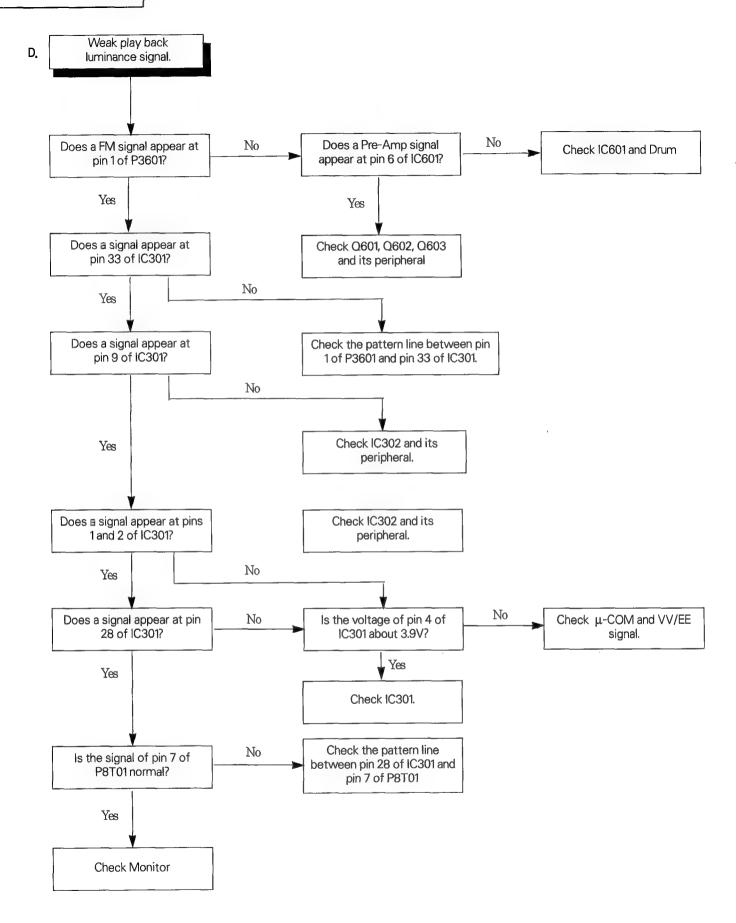
1) Remove the Cap-D by lifting it up

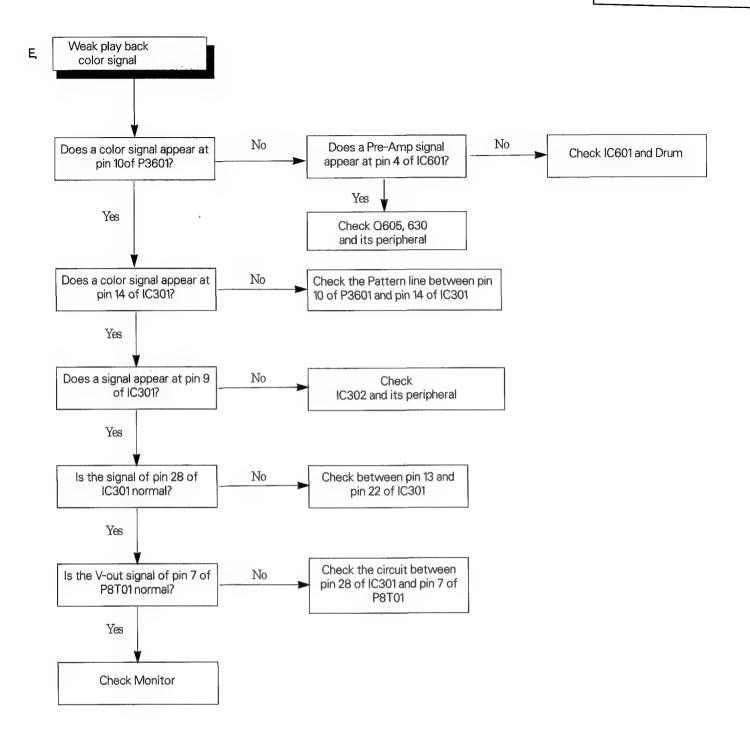
9-4. Spring C.C(Fig. A-9-1)

1) Remove the Spring C C from the Gear R

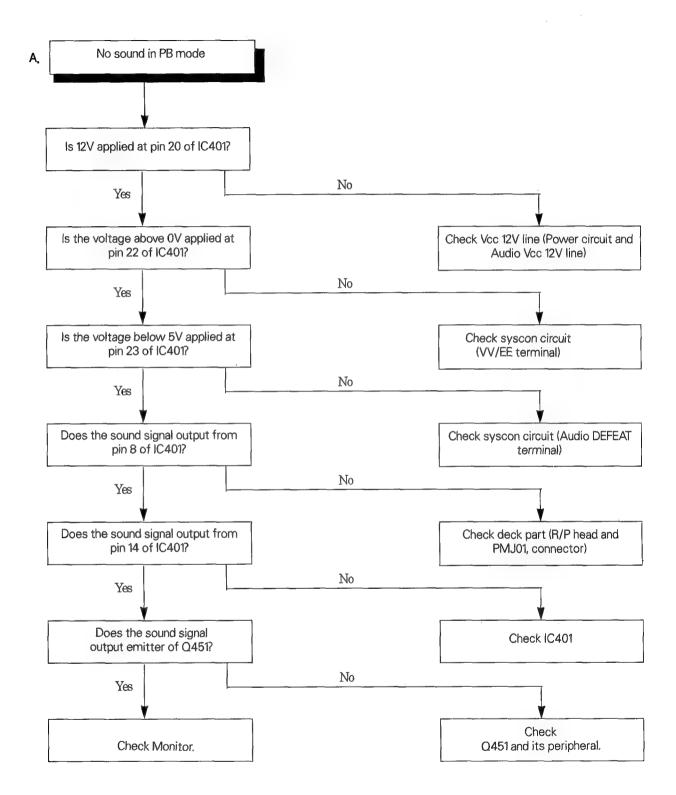
9-5. Gear C(Fig. A-9-1)

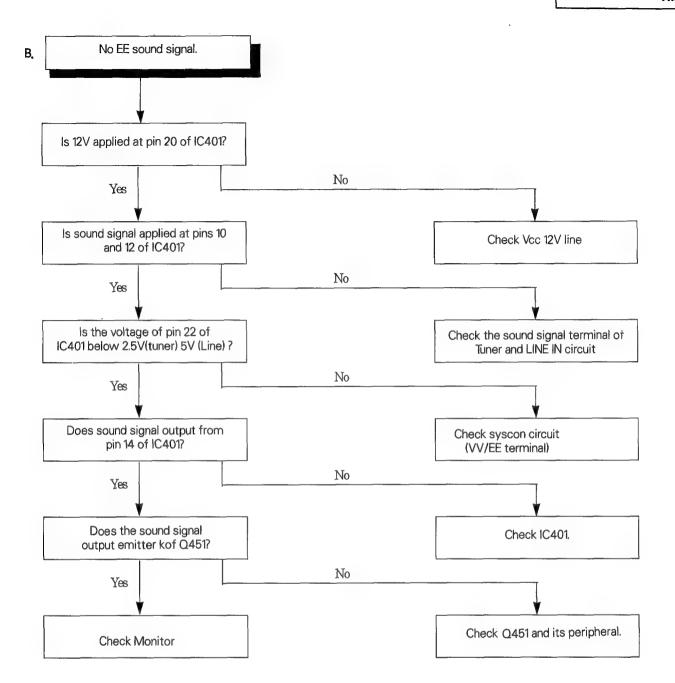
 Remove the Gear C by lifting up when the projection of Gear C is aligned with the hole of Gear R while rotating the Gear C in the counterclockwise direction

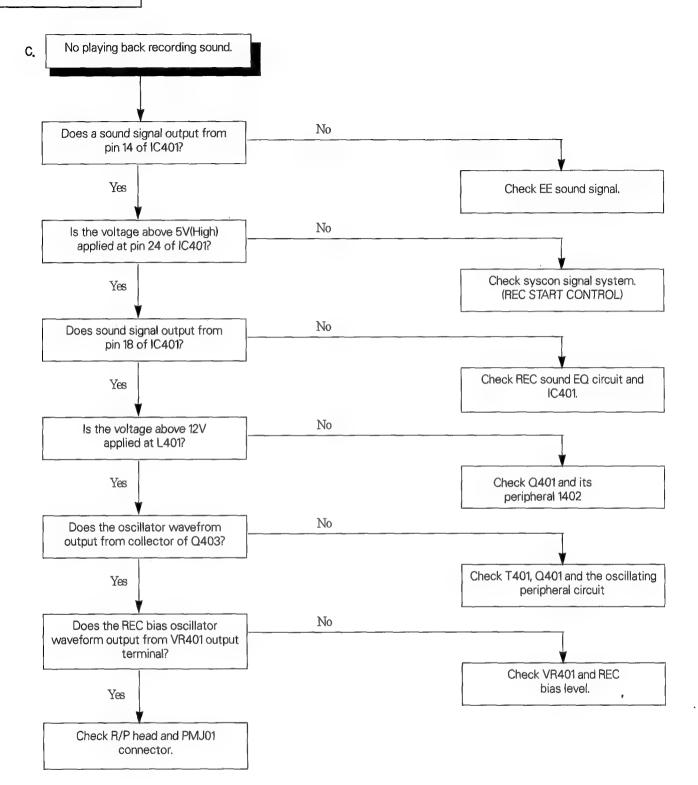




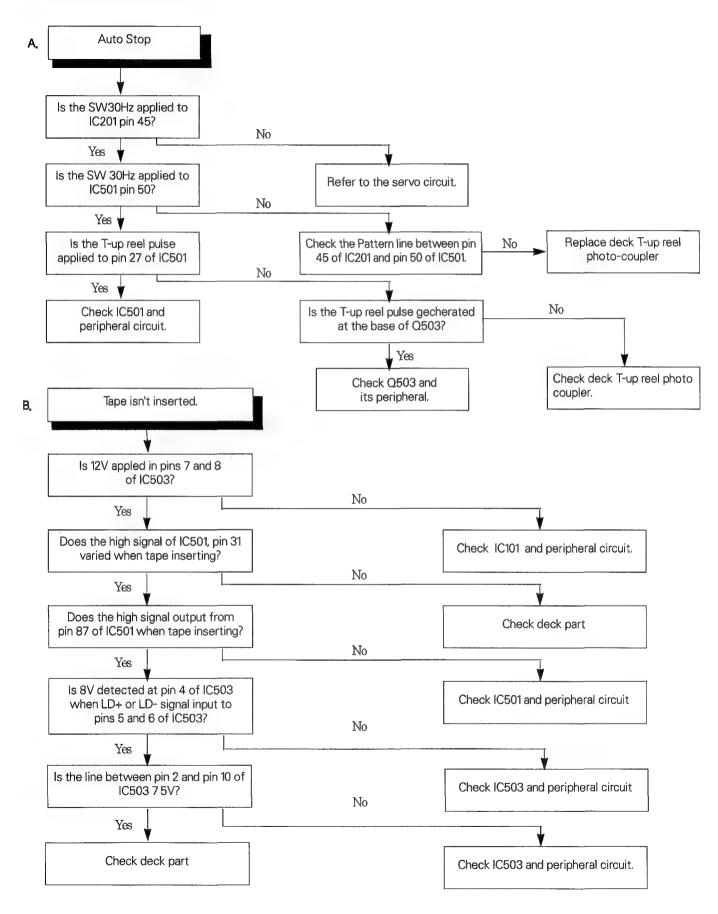
12-6. Audio Circuit



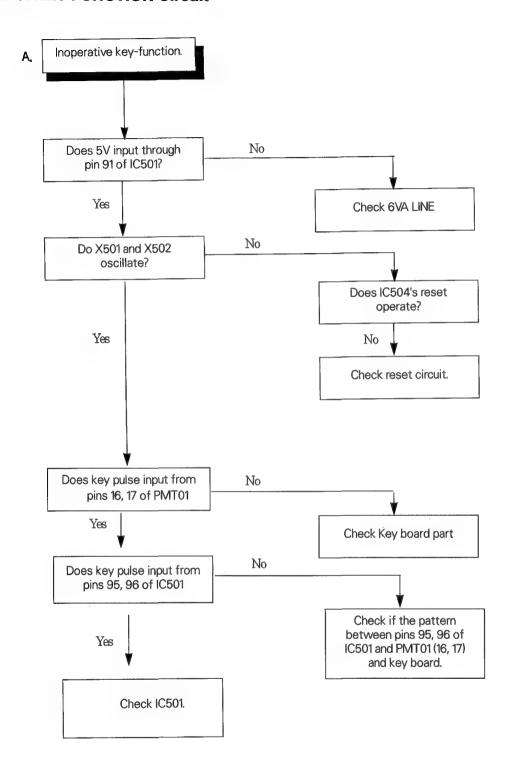




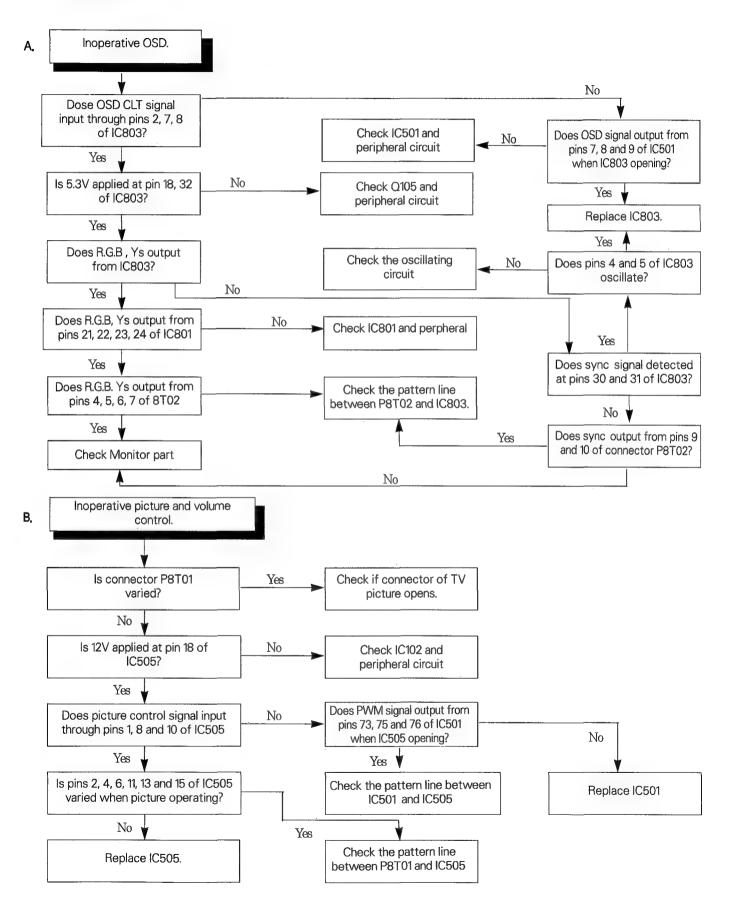
12-7. Syscon Circuit

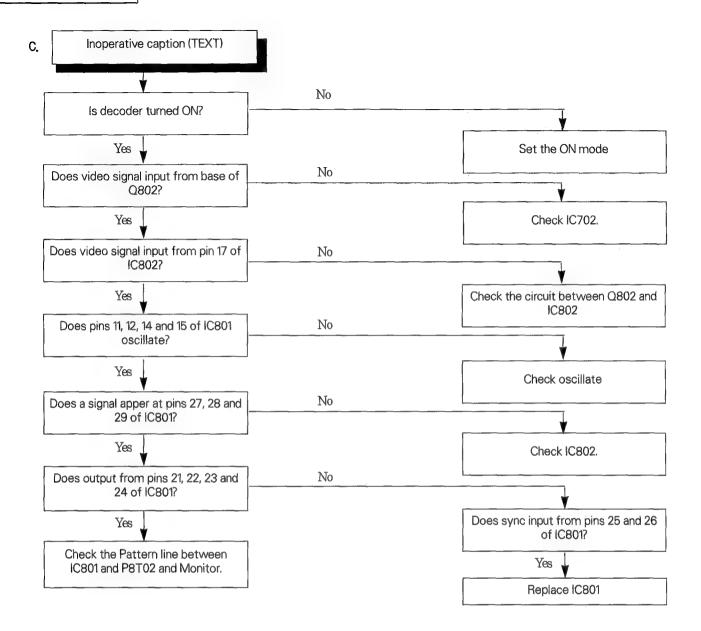


12-8. KEY FUNCTION Circuit

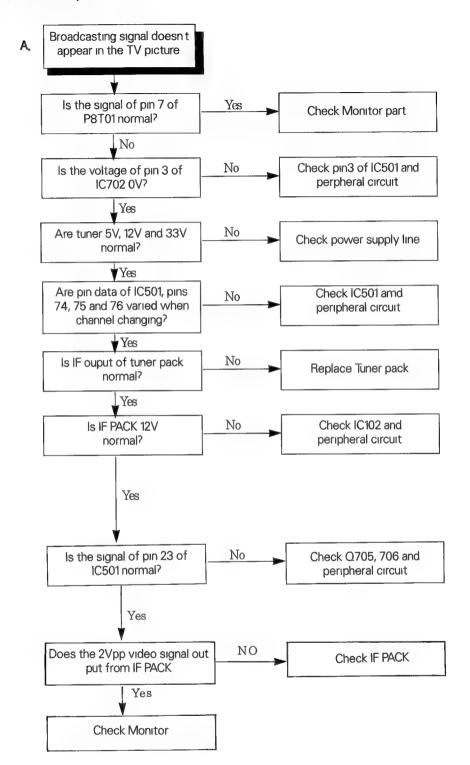


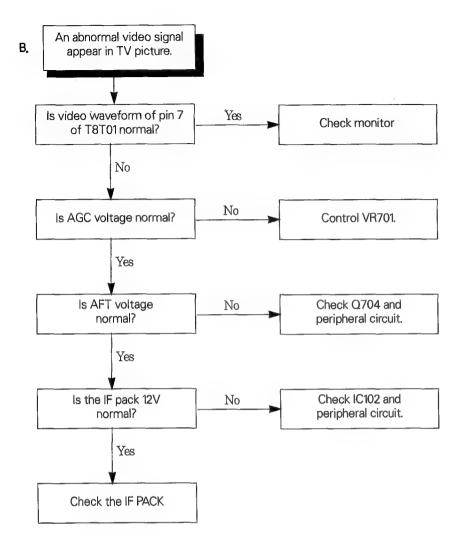
12-9. CAPTION/OSD

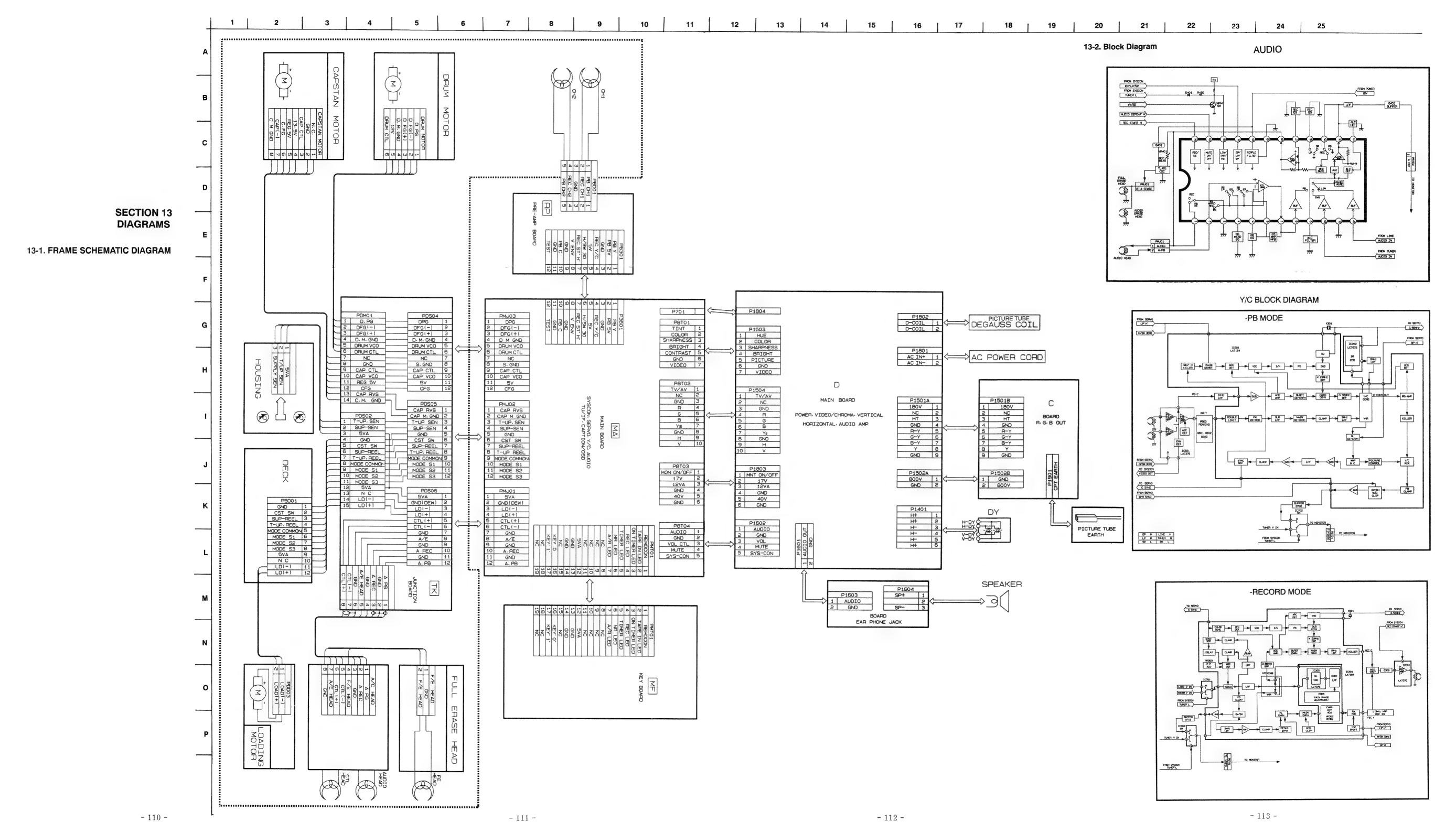




12-10. TUNER/IF Circuit

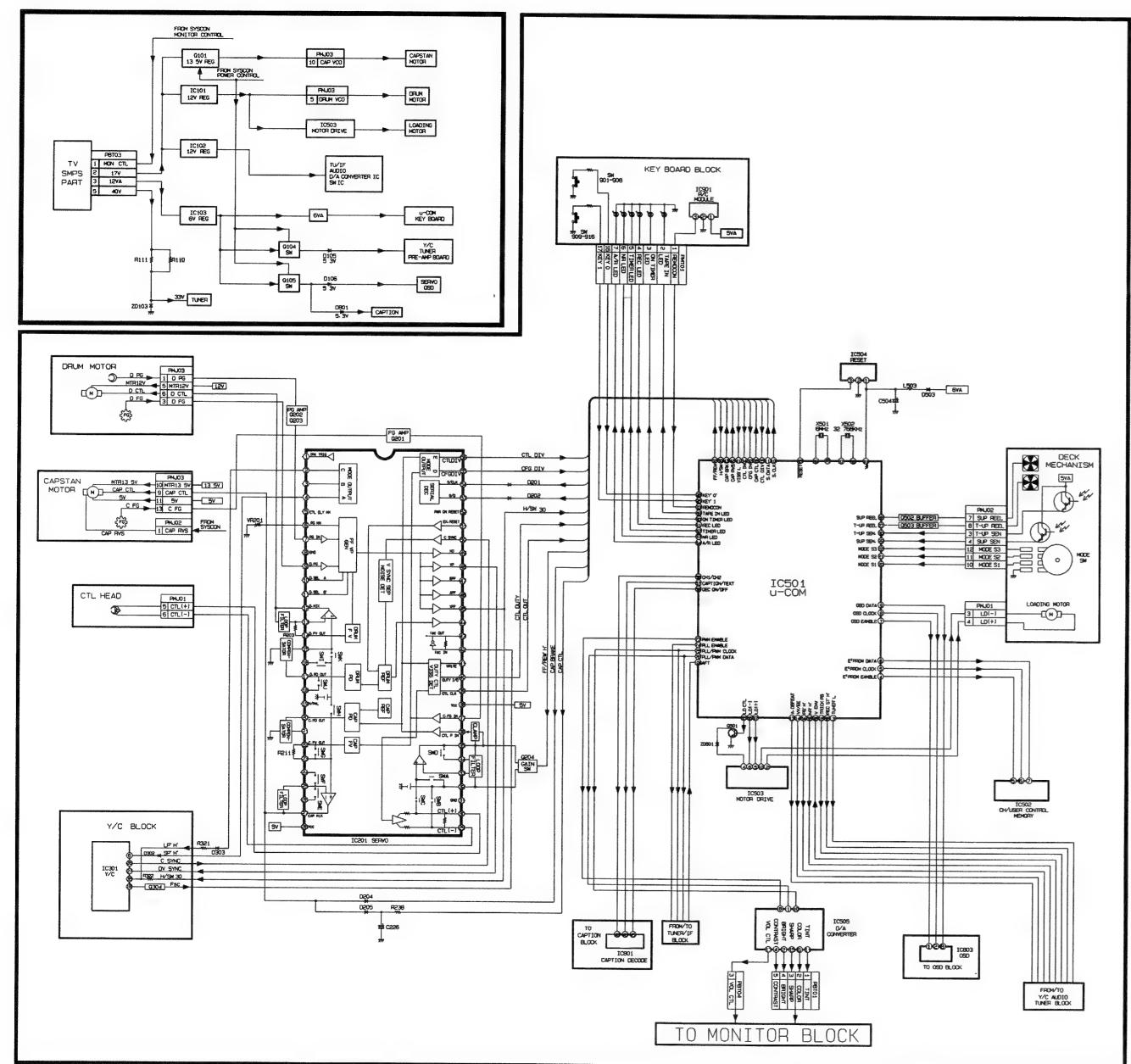




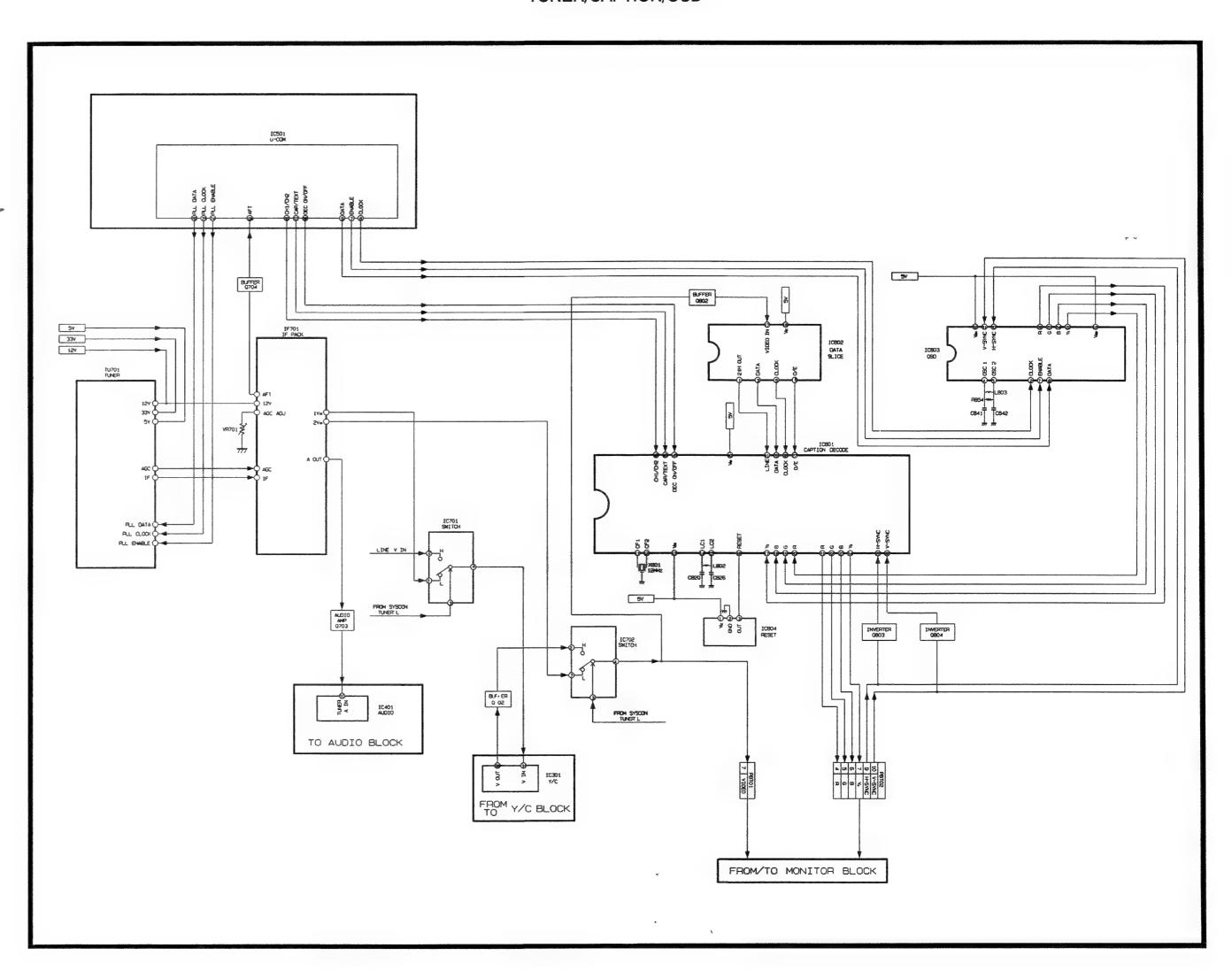


SERVO/SYSTEM CONTROL

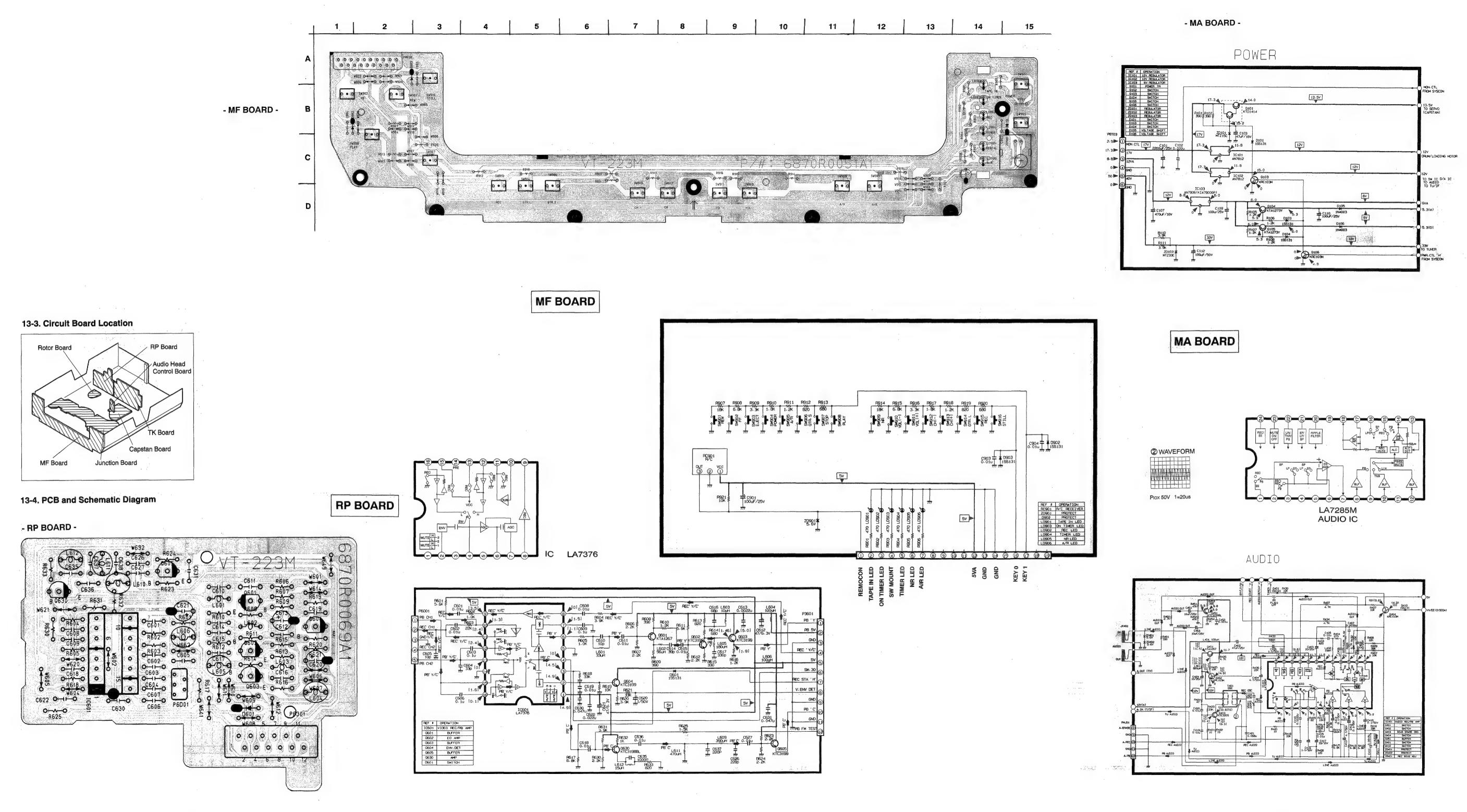
POWER



TUNER/CAPTÎON/OSD



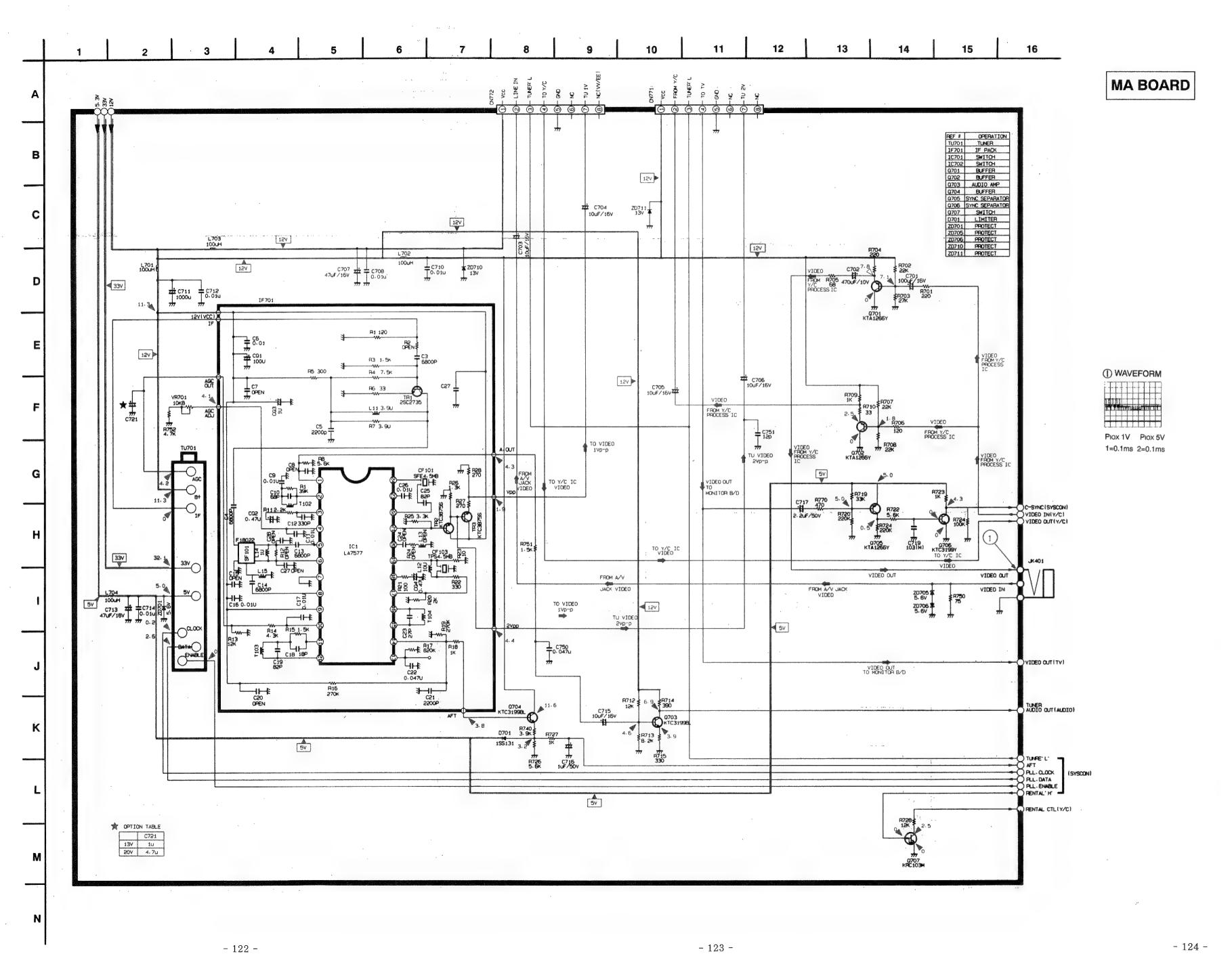
- 115 -



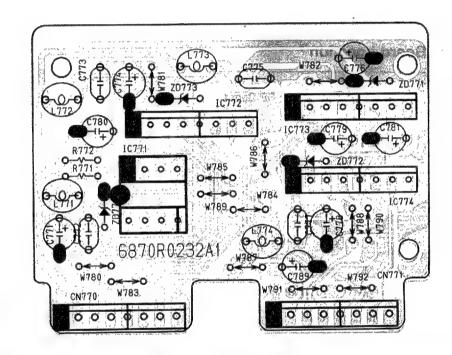
- 119 -

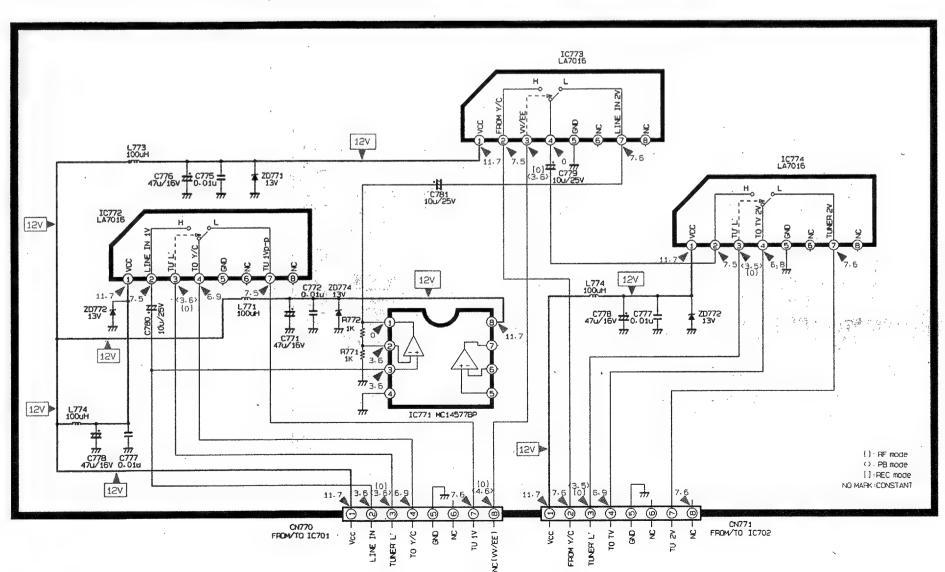
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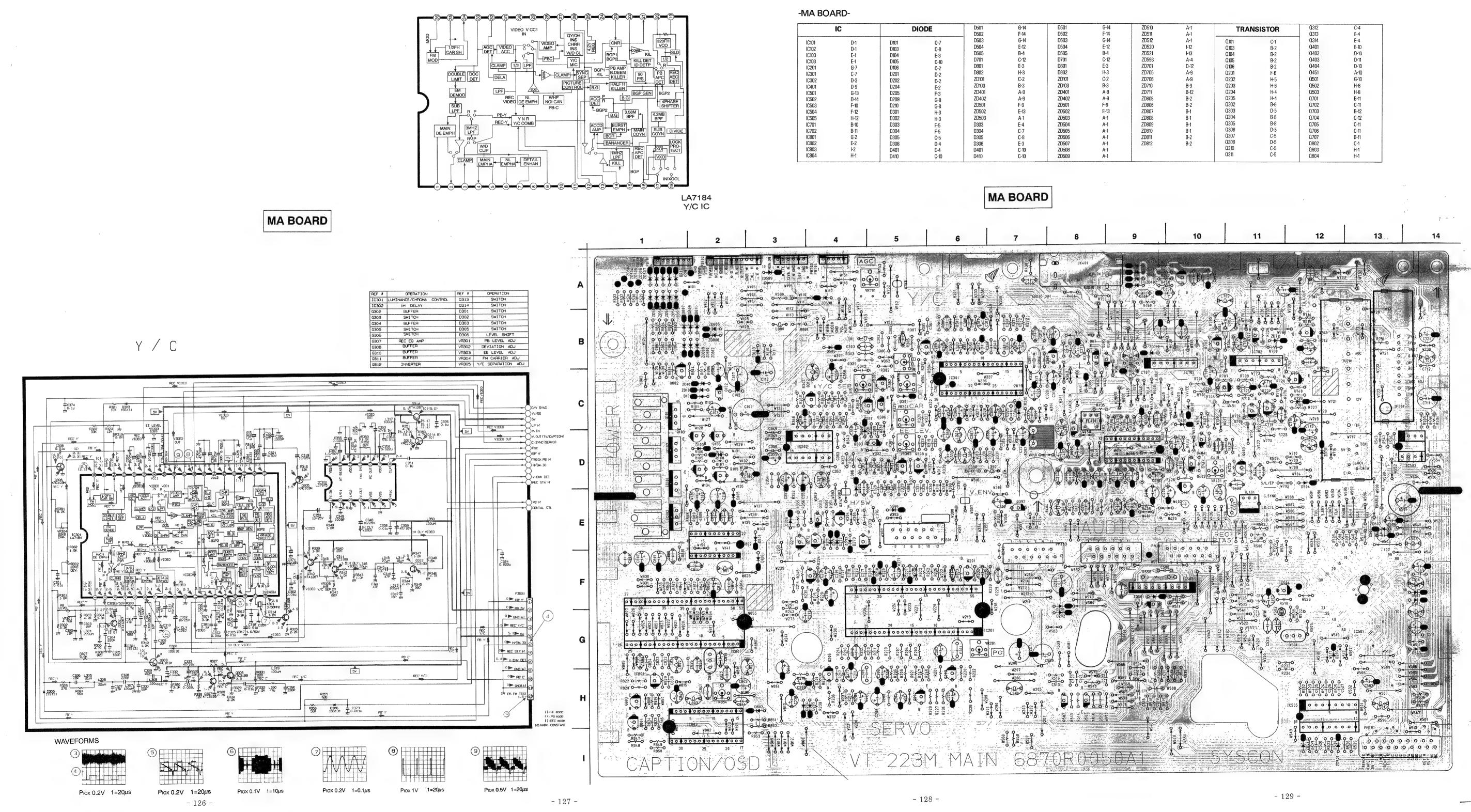
TUNER/IF

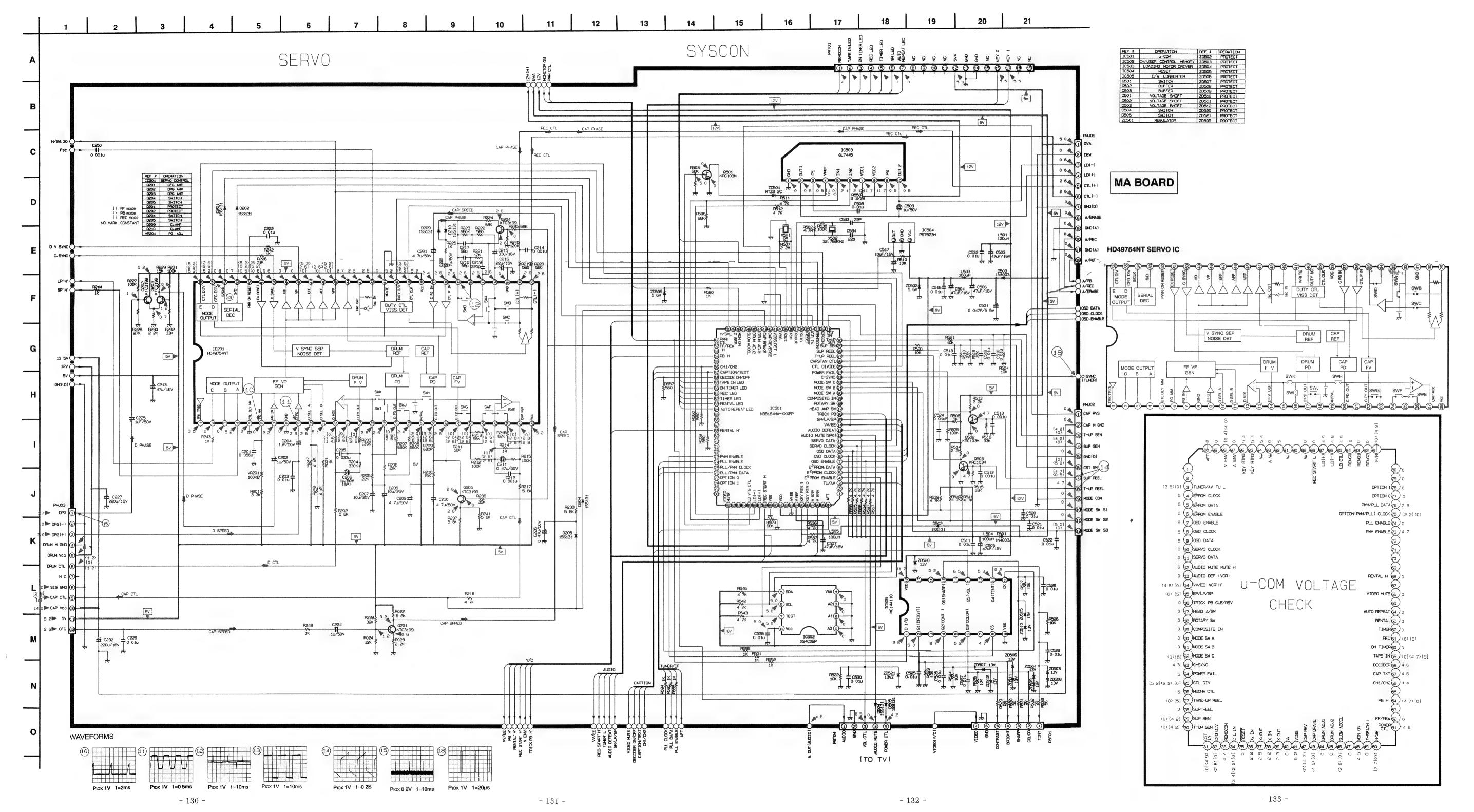


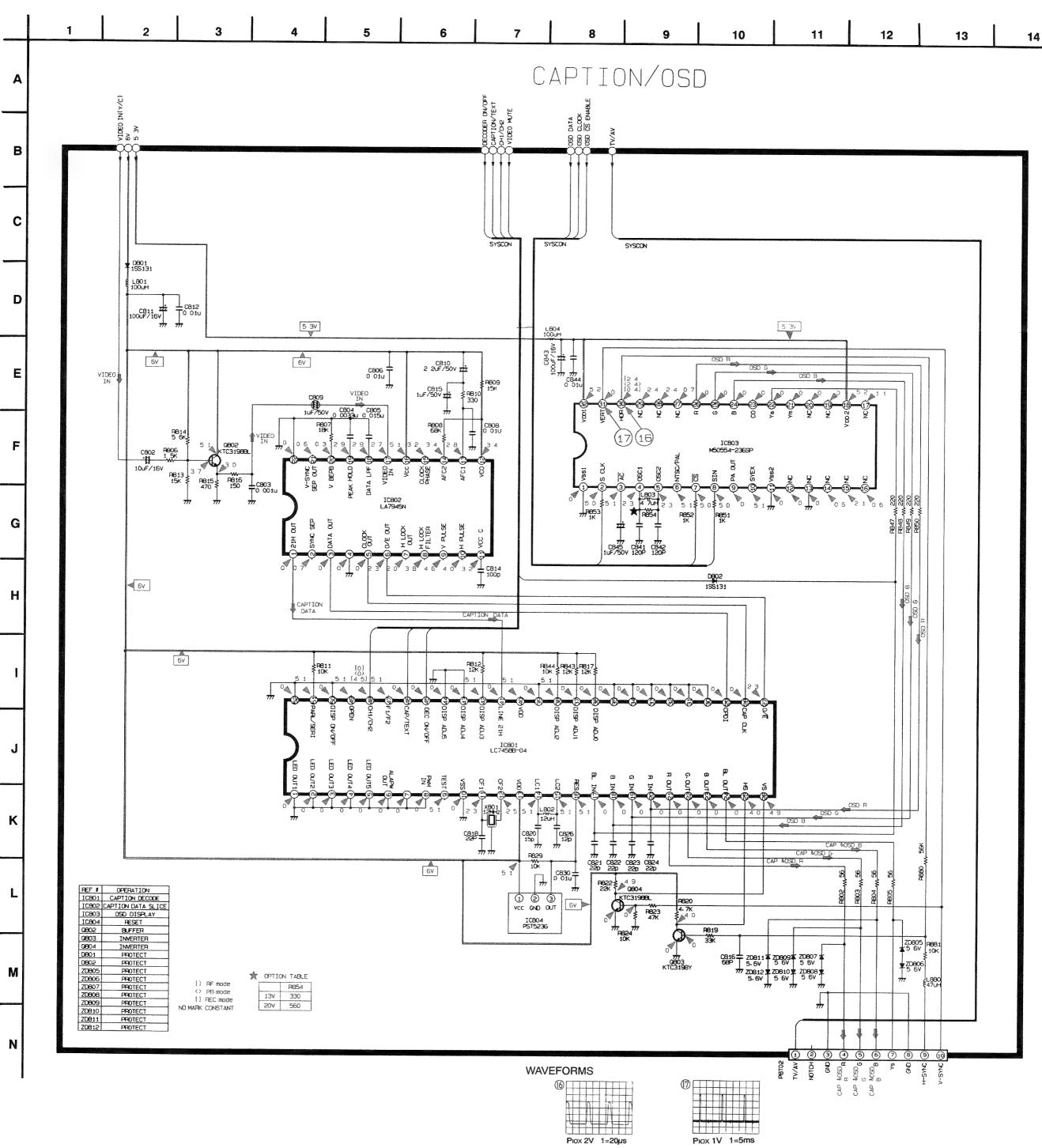
SW BOARD





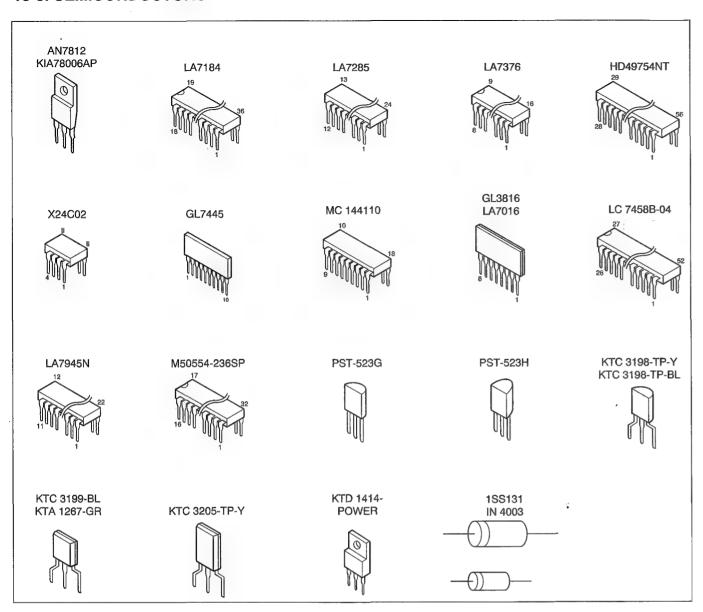






- 134 -

13-5. SEMICONDUCTORS



| MEMO | | |
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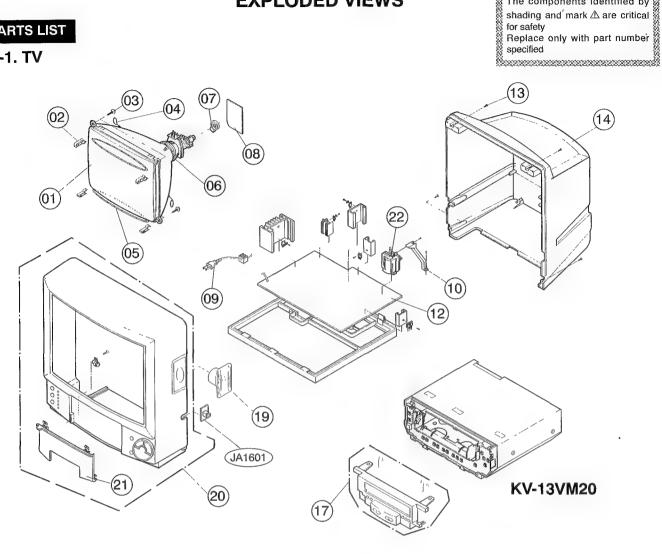
SECTION 14 EXPLODED VIEWS

PARTS LIST

14-1. TV

NOTE:

The components identified by shading and mark \triangle are critical



| REF NO | PART NO | DESCRIPTION RI | EMARK | REF NO | PART NO | DESCRIPTION RE | MARK |
|-------------|------------------------------|---|----------|--------------|------------------------------|--|------|
| 01 🛆 | | CRT(14NDX) <miz></miz> | MARKET. | 12 | 9-907-990-01 | D MOUNT | |
| 02 03 | 9-908-964-01 9-908-080-01 | HOLDER, DEGAUSSING COIL SCREW ASSY, HEXAGON HEAD | | 1 13 1 14 | 9-909-480-01 9-907-940-01 | SCREW, PAN HEAD TAP T4X16 BACK COVER ASSY | |
| 04 05 △∆ | 9-907-961-01 9-907-962-01 | COATING EARTH ASSY COIL, DEGAUSSING | light of | ¦ 17 ¦ 19 | 9-907-942-01 9-907-964-01 | VCR PANEL ASSY SPEAKER CO71A03-447K14 | |
| 06 | 8-451-418-11 | DEFLECTION YOKE(Y14NDA2) | | 20 | 9-907-926-01 | CABINET ASSY | |
| 07 | 1-526-819-11 | SOCKET, CRT | | 21 | 9-907-927-01 | CONTROL DOOR ASSY | |
| 08 | 9-907-983-01 | C MOUNT | | 22 🗘 | 9-907-991-01 | FBT | |
| 09 | 1-551-188-99 | CORD, POWER | | JA1601 | 1-507-939-11 | JACK, EAR PHONE | |
| 10 | 9-907-971-01 | HOLDER, FBT | | I. | | | |

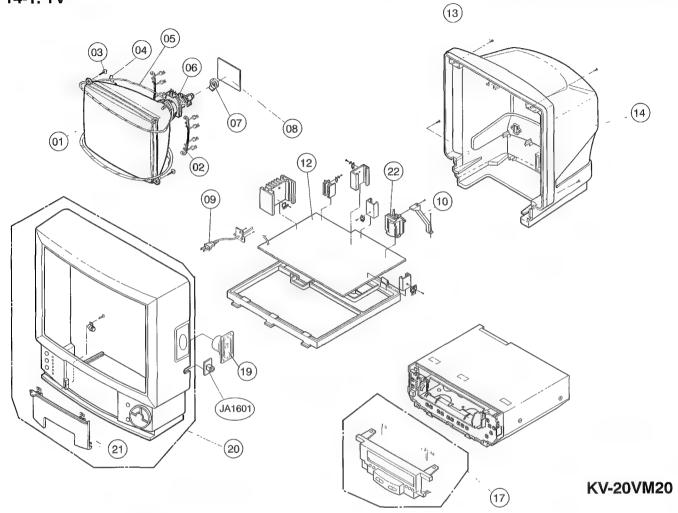
SECTION 14 EXPLODED VIEWS

NOTE:

The components identified by shading and mark △ are critical for safety Replace only with part number specified

PARTS LIST

14-1. TV

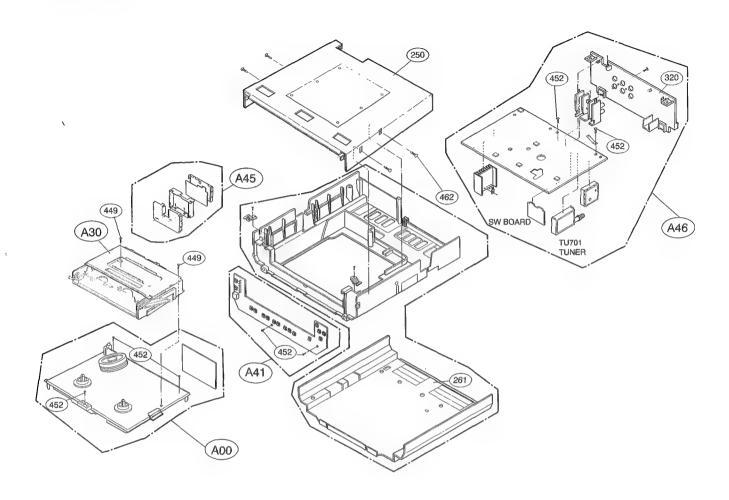


| REF NO | PART NO | DESCRIPTION | REMARK |
|------------|--------------|------------------------|----------------|
| 01 🛆 | 8-738-768-05 | CRT A51LDG50X | 中央表の時代 |
| 02 | 9-909-865-01 | HOLDER, DEGAUSSING COI | |
| 03 | 9-909-864-01 | SCREW ASSY, HEXAGON HI | EAD |
| 04 | 9-909-857-01 | COATING EARTH ASSY | |
| 04 05 🔼 | 9-909-855-01 | COIL, DEGAUSSING | REPRESENTATION |
| 06 | 8-451-440-11 | DEFLECTION YOKE Y21NX | A |
| 07 | 9-909-869-01 | SOCKET, CRT | |
| 08 | 9-909-853-01 | C MOUNT | |
| 09 | 9-909-888-01 | CORD, POWER | |
| 10 | 9-907-971-01 | HOLDER, FBT | |

| | REF NO | PART NO | DESCRIPTION | REMARK |
|---|--------|--------------|-----------------------------|--------|
| | | | | ~ |
| 1 | 12 | 9-909-852-01 | D MOUNT | |
| | 13 | 9-909-881-01 | SCREW, PAN HEAD TAP T4X20 | |
| 1 | 14 | 9-909-860-01 | BACK COVER ASSY | |
| | 17 | 9-907-942-01 | VCR PANEL ASSY | |
| | 19 | 9-907-964-01 | SPEAKER CO71A03-447K14 | |
| j | | | | |
| | 20 | 9-909-859-01 | CABINET ASSY | |
| | 21 | 9-909-863-01 | CONTROL DOOR ASSY | |
| 1 | 22 🛕 | 9-909-890-01 | FBT (* AC) SOUNDERS CONTROL | |
| | JA1601 | 1-507-939-11 | JACK, EAR PHONE | |
| | | | | |

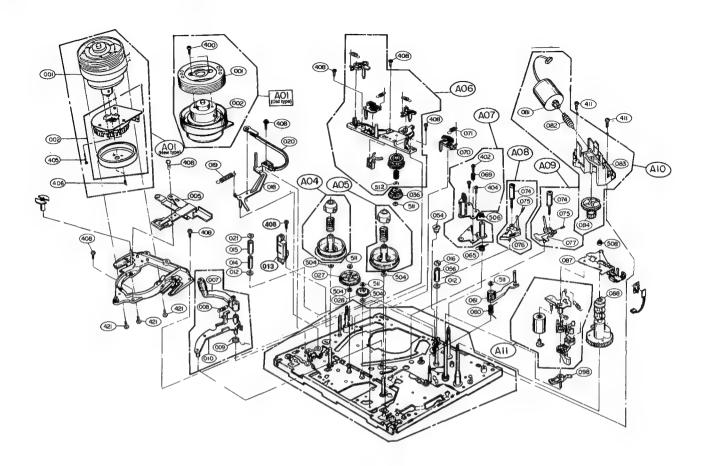
14-2. VIDEO

1. VCR Main Frame



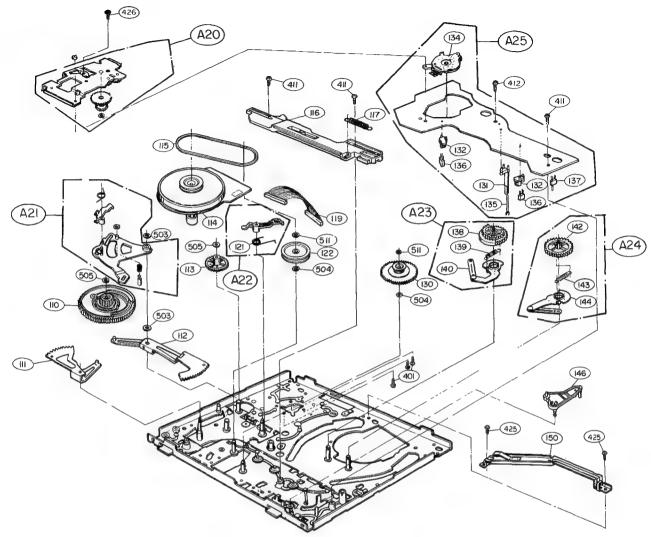
| REFNO | PART NO | DESCRIPTION | REMARK | REFNO | PART NO | DESCRIPTION | REMARK |
|--|--|--|--------|--------------|--|-------------------------------|--------|
| A00 A30 250 261 320 449 452 462 A41 A45 | 9-908-172-01 9-908-123-01 9-908-103-01 9-908-112-01 9-908-515-01 9-908-097-01 9-908-097-01 9-908-670-01 9-908-656-01 | DECK ASSY D-17 P (2HD VCR PAL) HOUSING ASSY (D17) CASE ASSY TOP COVER BOTTOM PANEL ASSY DISTRIBUTOR SCREW SPECLAL SCREW SPECIAL SCREW SPECIAL (FBK) MF BOARD RP BOARD | | A46 TU701 | 9-908-510-01 9-909-004-01 9-909-874-01 | MA BOARD TUNER SW BOARD | |
| 4 1-12 | 7 700 030-01 | N DOING | | į | | | |

2. Moving Mechanism Section(I)



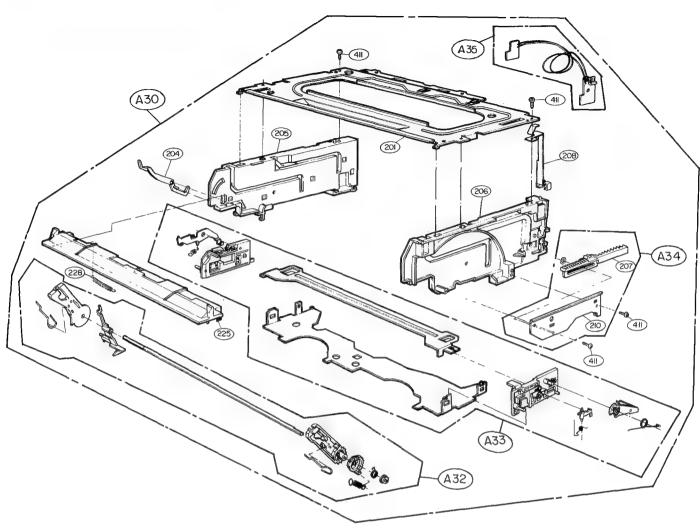
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|------------|-----------------------|-----------------------------|--------|-------|--------------|-------------------------------|--------|
| REFNO | PART NO | DESCRIPTION | REMARK | REFNO | PART NO | DESCRIPTION | REMARK |
| A01 | 9-908-441-01 | DRUM ASSY GSA D-17 NTSC | | 060 | 9-908-369-01 | SPRING T/UP | |
| A04 | 9-908-362-01 | REEL ASSY S17 | | 061 | 9-908-293-01 | ARM ASSY T/UP | |
| A04 A05 | 9-908-288-01 | REEL ASSY T17 | | 065 | 9-908-356-01 | SPRING A/C | |
| A06 | 9-908-243-01 | BRACKET ASSY F/R | | 069 | 9-908-241-01 | SPRING AZIMUTH | |
| A07 | 9-908-228-01 | BASE ASSY A/C | | 070 | 9-908-338-01 | BRACK ASSY T-MAIN | |
| AUT | 9-900-220 - 01 | DASE ASST A/C | | 1 070 | y-900-330-01 | DRACK ASST I-MAIN | |
| A08 | 9-908-202-01 | BASE ASSY,P2 | | 071 | 9-908-380-01 | SPRING TMB | |
| A09 | 9-908-196-01 | BASE ASSY.P3 | | 074 | 9-908-198-01 | ROLLER ASSY, GUIDE | |
| A10 | 9-908-216-01 | MOTOR ASSY LOAD | | 075 | 9-908-199-01 | SCREW MINIATURE | |
| All | 9-908-313-01 | LEVER ASSY PINCH | | 076 | 9-908-203-01 | BASE SUB ASSY, SLALT (L, W-W) | |
| 001 | 9-908-485-01 | DRUM ASSY, UPPER (NTSC-2CH) | | 077 | 9-908-197-01 | BASE SUB ASSY, SLALT (R, W-W) | |
| | | | | į | | | |
| 002 | 9-908-442-01 | DRUM ASSY, LOWER (D17-2CH) | | 081 | 9-908-224-01 | MOTOR SUB ASSY, L | |
| 005 | 9-908-341-01 | BASE ASSY D-BRUSH | | . 082 | 9-908-221-01 | WORM ASSY | |
| 007 | 9-908-388-01 | ARM SUB ASSY, CU | | 083 | 9-908-217-01 | BRACKET SUB ASSY L/M | |
| 800 | 9-908-395-01 | SPRING CU | | 084 | 9-908-220-01 | WHEEL WORM | |
| 009 | 9-908-394-01 | SPRING CL | | 087 | 9-908-375-01 | BRACKET ASSY DEW | |
| | | | | i | | | |
| 010 | 9-908-387-01 | ARM CL | | 1 088 | 9-908-374-01 | GEAR PINCH (N) | |
| 012 | 9-908-344-01 | GUIDE 17 | | 098 | 9-908-370-01 | LEVER T-UP (N) | |
| 013 | 9-908-343-01 | HEAD FE, HVFHF0010AK | | 400 | 9-908-503-01 | PAN HEAD MACHINE | |
| 014 | 9-908-345-01 | SLEEVE P1 | | 402 | 9-908-238-01 | SCREW SPECIAL | |
| 015 | 9-908-346-01 | ROLLER P1 | | 404 | 9-908-239-01 | SCREW CONE POINT 3X10 | |
| | | | | - | | | |
| 016 | 9-908-382-01 | ADJUST P(4) | | 408 | 9-908-171-01 | BINDING HEAD MA | |
| 018 | 9-908-206-01 | ARM ASSY TENSION | | 411 | 9-908-163-01 | SCREW SPECIAL (3X12) | |
| 019 | 9-908-355-01 | SPRING TENSION | | 412 | 9-908-422-01 | BINDING HEAD MA | |
| 020 | 9-908-211-01 | BAND ASSY TENSION | | 421 | 9-908-413-01 | PAN HEAD MACHINE | |
| 021 | 9-908-348-01 | STOPPER P1 | | 504 | 9-908-434-01 | WASHER PS DE | |
| 0.00 | 0.000.040.61 | GEAR INVENTAGE | | 1 506 | 0.000.340.63 | NUMBER ON A CO | |
| 027 | 9-908-360-01 | GEAR IDLE (A) POM 3G | | 506 | 9-908-342-01 | NUT NYLON M3 | |
| 028 | 9-908-361-01 | GEAR IDLE (B) POM 3G | | 508 | 9-908-998-01 | NUT NYLON(M3) | |
| 036 | 9-908-358-01 | GEAR F/R | | 511 | 9-908-427-01 | WASHER STOPPER | |
| 054 | 9-908-357-01 | ADJUST X-ASSY | | 512 | 9-908-434-01 | WASHER STOPPER | |
| 056 | 9-908-353-01 | SLEEVE P4 | | I | | | |
| | | | | i | | | |

3. Moving Mechanism Section(${ m II}$)



| REFNO | PART NO | DESCRIPTION | REMARK . | REFNO | PART NO | DESCRIPTION | REMARK |
|-------|--------------|----------------------------|----------|-------|--------------|-----------------------------|--------|
| A20 | 9-908-325-01 | BRACKET ASSY BOTTOM | | 136 | 9-908-297-01 | SENSOR SG-105(REEL) D-16KOC | |
| A21 | 9-908-281-01 | LEVER ASSY RAT | | 137 | 9-908-304-01 | SWITCH ESE-105SV1 | |
| A22 | 9-908-276-01 | BRAKE ASSY CAP | | 138 | 9-908-180-01 | GEAR LOAD(R) | |
| A23 | 9-908-179-01 | ARM ASSY LOAD(R) | | 139 | 9-908-181-01 | SPRING LOADING | |
| A24 | 9-908-187-01 | ARM ASSY LOAD(L) | | 140 | 9-908-182-01 | ARM SUB ASSY | |
| | | | | 1 | | | |
| A25 | 9-908-294-01 | PWB ASSY D-17,VCR | | 142 | 9-908-188-01 | GEAR LOAD(L) | |
| 110 | 9-908-381-01 | CAM D17 | | 143 | 9-908-189-01 | SPRING LOADING | |
| 111 | 9-908-337-01 | GEAR ASSY RACK F/L | | 144 | 9-908-190-01 | ARM SUB ASSY (L) | |
| 112 | 9-908-336-01 | GEAR ASSY RACK T | | 146 | 9-908-383-01 | LEVER ASSY A-TEN | |
| 113 | 9-908-379-01 | GEAR PC | | 150 | 9-908-397-01 | BRACKET ASSY C-GUIDE | |
| | | | | 1 | | | |
| 114 | 9-908-352-01 | MOTOR CAPSTAN GVC-017P | | 400 | 9-908-503-01 | PAN HEAD MACHINE | |
| 115 | 9-908-354-01 | BELT CENTER | | 401 | 9-908-245-01 | PAN HEAD MACHINE | |
| 116 | 9-908-367-01 | PLATE F17 | | 411 | 9-908-163-01 | SCREW SPECIAL (3X12) | |
| 117 | 9-908-368-01 | SPRING FP | | 412 | 9-908-422-01 | BINDING HEAD MA | |
| 121 | 9-908-280-01 | SPRING CAPSTAN | | 425 | 9-908-419-01 | BRAIZER HD TAP | |
| | | | | İ | | | |
| 122 | 9-908-359-01 | PULLEY GEAR POM 3G | | 426 | 9-908-420-01 | PAN HEAD MACHINE | |
| 130 | 9-908-269-01 | CLUTCH ASSY POM 7G FELT | | 503 | 9-908-426-01 | WASHER STOPPER | |
| 131 | 9-908-299-01 | HOLDER LED(Q) | | 504 | 9-908-434-01 | WASHER PS D3 | |
| 132 | 9-908-298-01 | HOLDER | | 505 | 9-908-434-01 | WASHER STOPPER | |
| 134 | 9-908-300-01 | SWITCH MODE | | 511 | 9-908-427-01 | WASHER STOPPER | |
| | | | | į | | | |
| 135 | 9-908-302-01 | DIODE LED IR SENSOR EL-55L | | 512 | 9-908-434-01 | WASHER STOPPER | |
| | | | | | | | |
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4. Front Loading Mechanism Section



| REFNO | PART NO | DESCRIPTION | REMARK | REFNO | PART NO | DESCRIPTION | REMARK |
|-------|--------------|----------------------|--------|-------|--------------|----------------------|--------|
| A30 | 9-908-123-01 | HOUSING ASSY | | 205 | 9-908-124-01 | BRACKET LEFT (D17) | |
| A32 | 9-908-142-01 | GEAR ASSY DRIVE | | 206 | 9-908-125-01 | BRACKET RIGHT (D17) | |
| A33 | 9-908-130-01 | BRACKET ASSY CARRIER | | 207 | 9-908-167-01 | GEAR RACK N/D | |
| A34 | 9-908-164-01 | BRACKET ASSY SIDE | | 208 | 9-908-126-01 | PLATE GND TOP | |
| A35 | 9-909-882-01 | PWB ASSY SENSOR | | 210 | 9-908-165-01 | BRACKET SIDE | |
| | | | | į | | | |
| 201 | 9-908-129-01 | PLATE TOP | | 225 | 9-908-127-01 | GUIDE CST | |
| 204 | 9-908-153-01 | OPENER DOOR | | 228 | 9-908-128-01 | SPRING S/W | |
| | | | | 411 | 9-908-163-01 | SCREW SPECIAL (3X12) | |
| | | | | 1 | | | |
| | | | | 1 | | | |
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SECTION 15 ELECTRICAL PARTS LIST

15-1. TV

NOTE:

The components identified by shading and mark \triangle are critical for safety

Replace only with part number

Replace only with part number specified

Les composants identifies par une frame et une marque ∆ sont critiques pour la securite
Ne les remplacer que piece portant le numero specifie.

- Items marked '*' are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- All variable and adjustable resistors have characteristic curve β unless otherwise noted

RESISTORS

- All resistors are in ohms
- F: nonflammable

When indicating parts by reference number., please include the board name

CAPACITORS

COILS

MF: μF, PF: μμF

UH, μH

| REF NO | PART NO | DESCRIPTION | REMARK | REF NO | PART NO | DESCRIPTION | REMARE |
|--------|--------------|---|--------|---------------------|------------------------------|--|-----------------------------------|
| | * (| 9-907-990-01 D MOUNT COMPLETE | | C1405 | 1-137-416-11 | CAP,PETP FILM 0 01MF 100V | |
| | , | 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 | | C1406 | 1-137-418-11 | CAP,PETP FILM 0 022MF 100V | |
| | | * * * * * * * * * * * * * * * * * | | C1407 | 1-102-977-00 | CAP, CERAMIC 200PF 50V | |
| | | <capacitor></capacitor> | | C1408 | 1-128-576-11 | CAP,ELECT 100MF 16V (KV-13VM20 | |
| | | CAPACITOR> | | C1408 | 1-126-941-11 | CAP,ELECT 470MF 16V (KV-20VM20 | only) |
| | | | | C1409 | 1-126-967-11 | CAP,ELECT 47MF 50V | |
| C1201 | 1-126-964-11 | CAP,ELECT 10MF 16V | | | | | |
| C1202 | 1-126-964-11 | CAP,ELECT 10MF 16V | | C1410 | 1-107-618-11 | CAP, CERAMIC 180PF 500V | |
| C1203 | 1-126-941-11 | CAP,ELECT 470MF 16V | | C1411 | 1-164-646-11 | CAP,CERAMIC 2200PF 500V | HARL BEAUTHOUGH LAREN ACCOUNTS |
| C1204 | 1-102-129-00 | CAP, CERAMIC 0 01MF 16V | | | 9-909-883-01 | CAP,MPP 7700PF 1.6KV (KV-13VM20 | |
| C1207 | 1-126-964-11 | CAP,ELECT 10MF 16V | | C1413 | 1-196-075-11 | CAP,MPP 8200PF 1 6KV (KV-20VM20 | only) |
| | | | | i C1414 | 1-165-127-11 | CAP, CERAMIC 470PF 500V | ni kumbakarat da Komata kwa |
| C1208 | 1-102-973-00 | CAP, CERAMIC 100PF 50V (KV-13VM20 only) | | C1415 🛆 | 1-136-107-11 | CAP,FILM 0,39MF 200V | |
| C1208 | 1-102-109-11 | CAP, CERAMIC 180PF 50V (KV-20VM20 only) | | 1 | 1 104 770 11 | CARTA TOTAL DEL COM | |
| C1209 | 1-102-129-00 | CAP, CERAMIC 0 01MF 16V | | C1416 | 1-126-772-11 | CAPELECT IMF 250V | alikus Ether a milikosiko serriat |
| C1210 | 1-124-964-11 | CAP,ELECT 10MF 16V | | | 1-126-966-11 | | |
| C1211 | 1-126-903-11 | CAP,ELECT 1 0MF 50V | | C1418 | 1-126-963-11 | CAPELECT 4 7MF 50V | |
| C1212 | 1-124-903-11 | CAP,ELECT 1 0MF 50V | | C1419 | 1-126-773-11 | CAP, ELECT 47MF 250V | M20 omby) |
| | | | | C1420 | 9-909-475-01 | CAP,CERAMIC 2200PF 2KV (KV-20VI | wzu oniy) |
| C1213 | 1-124-903-11 | CAP,ELECT 1 0MF 50V | | 01427 | 1-102-111-00 | CAP,CERAMIC 270PF 50V | |
| C1214 | 1-102-129-00 | CAP,CERAMIC 0 01MF 16V | | C1427 | | CAPELECT IONE 15V | |
| C1215 | 1-126-963-11 | CAP,ELECT 4 7MF 50V | | C1428 △\(\(\Delta\) | 1-126-964-11 1-102-962-00 | CAP,ELECT 10MF 16V CAP,CERAMIC 30PF 50V (KV-13M20 | |
| C1216 | 1-137-420-11 | CAP,CERAMIC 0 047MF 100V | | C1501 | 1-102-458-11 | CAP, CERAMIC 30FF 50V (KV-13M20 CAP, CERAMIC 20PF 50V (KV-20VM2 | |
| C1217 | 1-137-398-11 | CAP,PETP FILM 0 068MF 100V | | C1501 | 1-102-962-00 | CAP, CERAMIC 20FF 50V (KV-20VM2 | o only) |
| | | | | C1502 | 1-126-963-11 | CAP, ELECT 4 7MF 50V | |
| C1219 | 1-137-418-11 | CAP,PETP FILM 0 022MF 100V | | 1 C1300 | 1-120-905-11 | CAF,ELECT 4 /WF 30V | |
| C1220 | 1-126-963-11 | CAP,ELECT 4 7MF 50V | | C1507 | 1-126-963-11 | CARELECT 4 7MF 50V | |
| C1221 | 1-102-157-00 | CAP, CERAMIC 560PF 500V | | 1 C1507 | 1-126-963-11 | CAP,ELECT 4 7MF 50V | |
| C1222 | 1-126-767-11 | CAP,ELECT 1000MF 16V | | C1500 | 1-102-129-00 | CAP,CERAMIC 0 01MF 16V | |
| C1251 | 1-126-966-11 | CAP,ELECT 33MF 16V | | C1510 | 1-102-963-11 | CAP, CERAMIC 12PF 50V | |
| C1252 | 1-126-967-11 | CAP,ELECT 47MF 16V (KV-20VM20 only) | | C1512 | 1-128-576-11 | CAP,ELECT 100MF 16V | |
| C1301 | 1-124-903-11 | CARELECT 1MF 50V | | | | 0.0000.0000.000 | |
| C1302 | 1-137-416-11 | CAP,PETP FILM 0 01MF 100V (KV-13VM20 on | lv) | C1514 | 1-102-129-00 | CAP,CERAMIC 0 01MF 16V | |
| C1302 | 1-137-419-11 | CAP,PETP FILM 0 033MF 100V (KV-20VM20 o | | C1515 | 1-128-576-11 | CAP,ELECT 100MF 16V | |
| C1302 | 1-136-683-51 | CAP,PETP FILM 5600PF 100V | , | C1516 | 1-102-129-00 | CAP, CERAMIC 0 01MF 16V | |
| C1304 | 1-124-903-11 | CAPELECT 1 0MF 50V | | C1517 | 1-126-964-11 | CAPELECT 10MF 16V | |
| C1305 | 1-106-385-12 | CAP,PETP FILM 0 056MF 100V | | C1518 | 1-126-959-11 | CAP,ELECT 0 47MF 50V | |
| | | | | C1519 | 1-102-942-00 | CAP, CERAMIC 5PF 50V | |
| C1307 | 1-162-117-00 | CAP, CERAMIC 100PF 500V | | C1521 | 1-102-973-00 | CAP, CERAMIC 100PE 50V (KV-13VM | |
| C1308 | 1-164-645-11 | CAP,CERAMIC 1000PF 500V | | C1521 | 1-102-971-11 | CAP,CERAMIC 82PF 50V (KV-20VM2 | |
| C1309 | 1-126-948-11 | CAP,ELECT 100M 35V | | C1522 | 1-102-973-00 | CAP, CERAMIC 100PF 50V (KV-13VM | |
| C1310 | 1-137-425-11 | CAP,PETP FILM 0 33MF 500V | | C1522 | 1-102-971-11 | CAP, CERAMIC 82PF 50V (KV-20VM2 | |
| C1311 | 1-126-953-11 | CAP,ELECT 2200MF 25 | | C1523 | 1-102-973-00 | CAP, CERAMIC 100PF 50V (KV-13VM | |
| | | | | C1523 | 1-102-971-11 | CAP, CERAMIC 82PF 50V (KV-20VM2 | (O only) |
| C1312 | 1-124-903-11 | CAP,ELECT 1 0MF 50V | | C1561 | 1-102-851-11 | CAP, CERAMIC 15PF 50V | |
| C1313 | 1-102-157-00 | CAP,CERAMIC 560PF 500V | | | | | |
| C1314 | 1-126-951-11 | CAP,ELECT 470MF 35V | | C1562 | 1-102-129-00 | CAP,CERAMIC 0 01MF 50V | |
| C1315 | 1-126-951-11 | CAP,ELECT 470MF 35V | | C1601 | 1-124-903-11 | CAPELECT 1 0MF 50V | |
| C1316 | 9-908-481-01 | CAP,CERAMIC 3300PF 16V | | C1602 | 1-128-576-11 | CAPELECT 100MF 16V | |
| | | | | C1603 | 1-126-967-11 | CAPELECT 47MF 16V | |
| C1317 | 1-126-967-11 | CAP,ELECT 47MF 50V | | C1604 | 1-124-903-11 | CAP,ELECT 1 0MF 50V | |
| C1318 | 1-137-354-11 | CAP,PETP 0 1MF 50V (KV-20VM20 only) | | | | 0.000.000.000.000 | |
| C1401 | 1-137-419-11 | CAP,PETP FILM 0 033MF 100V | | C1605 | 1-124-903-11 | CAPELECT 1 0MF 50V | |
| C1402 | 1-124-925-11 | CAP,ELECT 2 2MF 50V | | C1606 | 1-126-964-11 | CAPELECT 10MF 16V | |
| C1403 | 1-137-416-11 | CAP,PETP FILM 0 01MF 100V | | C1607 | 1-126-767-11 | CAPELECT 1000M 16V | |
| C1404 | 1-137-418-11 | CAP,PETP FILM 0 022MF 100V | | C1608 | 1-101-005-00 | CAP, CERAMIC 22000PF 25V | |

| REF NO | PART NO | DESCRIPTION | REMARK | REF NO | PART NO | DESCRIPTION REMARK |
|----------------------------------|--|--|-------------|--|--|--|
| C1609 C1610 C1615 | 1-137-401-11 1-126-941-11 9-908-968-01 1-137-417-11 | CAPPETP FILM 0 22MF 50V CAPELECT 470MF 16V CAPELECT 0 1U 50V | | D1825 D1826 D1827 | 8-719-304-63 8-719-304-63 8-719-815-85 | DIODE RM11CV DIODE RM11C DIODE S6539 (KV-13VM20 only) |
| C1616 C1616 C1701 C1701 | 1-137-417-11 1-137-418-11 1-124-347-00 1-124-356-11 | CAP,PETP EILM 0 015MF 100V (KV-13VM20 only) CAP,PETP 0 022MF 10V (KV-20VM20 only) CAP,ELECT 100MF 160V (KV-13VM20 only) CAP,ELECT 220MF 160V (KV-20VM20 only) | | D1828 ZD1303 ZD1304 | 8-719-300-33 8-719-982-20 8-719-982-20 | DIODE RU-3AM DIODE MTZ30B DIODE MTZ30B |
| C1800 | 1-136-345-11 | CAPACITOR AC 0 1MF 125V | | ZD1401 ZD1402 | 8-179-921-49 8-719-921-49 | DIODE MTZ6 2B DIODE MTZ6 2B |
| C1801 C1802 C1803 C1804 | 1-136-345-11 1-104-331-11 1-104-331-11 1-104-331-11 | CAPACITOR AC 0 1MF 125V CAP,CERAMIC 2200PF 2KV CAP,CERAMIC 2200PF 2KV CAP,CERAMIC 2200PF 2KV | | [| 8-719-921-63 8-719-921-49 | DIODE MTZ7.5B DIODE MTZ6.2B |
| C1805 | 1-104-331-11 | CAP,CERAMIC 2200PF 2KV | | ZD1501 ZD1502 ZD1503 | 8-719-921-80 8-719-921-80 8-719-921-80 | DIODE MTZ11B DIODE MTZ11B DIODE MTZ11B |
| C1806 C1807 C1808 C1809 | 1-125-499-11 1-136-539-11 1-164-645-11 1-124-667-11 | CAPACITOR 220MF 400V CAP,ETP FILM 2200MF 800V CAPCERAMIC 1000PF 500V CAP,ELECT 10MF 100V | | ZD1504 ZD1505 | 8-719-921-80 8-719-921-69 | DIODE MTZ11B DIODE MTZ9 1B |
| C1810 | 1-128-576-11 | CAP,ELECT 100MF 16V | | ZD1506 ZD1507 | 8-719-921-82 8-719-982-03 | DIODE Z12BM DIODE MTZ3 6B (KV-13VM20 only) |
| C1811 C1812 | 1-126-969-11 1-165-127-11 | CAP,ELECT 220MF 16V CAP,CERAMIC 470PF 500V | | ZD1507 ZD1601 | 9-909-900-01 8-719-921-80 | DIODE MTZ5 IB (KV-20VM20 only) DIODE MTZ11B |
| C1813 C1814 | 1-164-646-11 1-124-667-11 | CAP, CERAMIC 2200PF 500V CAP, ELECT 10MF 100V | | ZD1808 ZD1815 | 8-719-109-97 8-719-921-80 | DIODE MTZ6 8B DIODE MTZ1 IB |
| C1815 C1816 | 1-126-356-11 9-908-969-01 | CAP,ELECT 220MF 160V CAP,ELECT 100MF 100V | | ZD1818 ZD1820 | 8-719-921-49 8-719-921-80 | DIODE MTZ6 2B DIODE MTZ11B |
| C1817 C1818 | 9-908-970-01 1-124-618-11 | CAP,CERAMIC 1200PF 500V CAP,ELECT 2200MF 35V | | ZD1821 ZD1822 | 8-719-982-03 1-809-605-011 | DIODE MTZ3 6B DIODE MTZ13B (KV-13VM20 only) |
| C1819 | 1-124-557-11 | CAP,ELECT 1000MF 25V | | ZD1822 | 9-933-002-01 | DOIDE MTZ15B (KV-20VM20 only) |
| C1820 C1821 | 1-165-127-11 1-165-127-11 | CAP,CERAMIC 470PF 500V CAP,CERAMIC 470PF 500V CAP,ELECT 470MF 35V | | 1 | | <filter></filter> |
| C1822 C1823 C1824 | 1-126-951-11 1-124-618-11 1-126-964-11 | CAP,ELECT 470MF 35V CAP,ELECT 2200MF 35V CAP,ELECT 10MF 50V | | DL1201 | 9-909-887-01 | COMB FILTER (KV-20VM20 only) |
| | <u>1 9-908-971-01</u> | CAPACITOR DE 4700PF | | | | <delay line=""></delay> |
| C1826 C1827 | 1-137-399-11 1-137-416-11 | CAP,PETP FILM 0 1MF 100V CAP,PETP FILM 0 01MF 100V | | DL1202 | 9-908-973-01 | DELAY LINE (KV-13VM20 only) FERRITE BEAD> |
| C1828 C1829 C1829 | 1-137-416-11 1-137-401-11 1-137-144-11 | CAP,PETP FILM 0 01MF 100V CAP,PETP FILM 0 22MF 50V (KV-13VM20 only) CAP,PETP FILM 0 47MF 50V (KV-20VM20 only) | | FB1402 | 1-408-105-00 | MICRO INDUCTOR 1UH |
| | ₾ 9-908-971-01 | CAPACITOR DE 4700PF | | FB1403 FB1801 FB1802 | 1-408-105-00 1-408-105-00 1-408-105-00 | MICRO INDUCTOR 1UH MICRO INDUCTOR 1UH MICRO INDUCTOR 1UH |
| C1831 C1831 C1832 | 1-126-964-11 1-124-925-11 9-909-477-01 | CAP,ELECT 10MF 16V (KV-13VM20 only) CAP,ELECT 2 2MF 50V (KV-20VM20 only) CAPACITOR 4700PF 1K | | FB1803 | 1-408-105-00 | MICRO INDUCTOR 1UH |
| C1904 C1904 D1201 | 1-136-203-11 9-909-475-01 9-908-974-01 | CAP,PETP FILM 0 01MF 630V (KV-13VM20 only) CAP,CERAMIC 2200PF 2KV (KV-20VM20 only) CAP,CERAMIC 560PF 50V | | FB1804 | 1-408-105-00 | MICRO INDUCTOR 1UH FUSE> |
| | | <diode></diode> | | F1801 | N 1-532-703-00 | FUSE,12V/4A |
| D1202 | 8-719-300-80 | DIODE RU-IC (KV-13VM20 only) | | F1802 | S 9-908-975-01 S 9-908-975-01 | PUSE FUSE |
| D1202 D1203 D1205 D1206 | 8-719-300-33 8-719-815-85 8-719-815-85 9-908-037-01 | DIODE,RU-3AM (KV-20VM20 only) DIODE S6539 DIODE S6539 DIODE BAT 41 | | | | <ic></ic> |
| D1301 | 8-719-300-80 | DIODE RU-1C | | IC1301 IC1501 | 9-908-018-01 9-908-059-01 | IC,LA7833 IC,AN5302 |
| D1302 D1305 | 8-719-300-33 8-719-815-85 | DIODE RU-3AM DIODE S6539 | | I IC1601 LIC1801 I IC1802 | 8-759-420-04 9-908-014-01 | IC,AN5265 IC,STR-S6707 IC,PHOTOCOUPLER |
| D1306 D1403 | 8-719-815-85 <u>8</u> -719-300-80 | DIODE \$6539 DIODE RU-1C | \$\$1\5\$\$ | Person real area | ∆ 8-719-902-56 1√ 8-719-902-56 | IC, PHOTOCOUPLER |
| D1405 D1415 D1508 | 8-719-300-80 8-719-018-66 8-719-815-85 | DIODE RU-1C DIODE ESIF (KV-13VM20 only) DIODE S6539 | | the state of the s | 8-749-921-89 8-759-518-68 | IC,SE115N IC,PQ12RF21 |
| D1802 D1803 | 8-719-304-63 8-719-300-33 | DIODE RM11C DIODE RU-3AM | | i i | | <jack></jack> |
| D1804 D1805 | 8-719-300-33 3-719-300-33 | DIODE RU-3AM DIODE RU-3AM | | JA1601 | 1-507-939-11 | JACK EARPHONE COIL> |
| D1806 D1807 | 8-719-300-33 8-719-300-70 | DIODE RU-3AM DIODE RH-1C | | J38 | 1-410-521-11 | MICRO INDUCTOR 100UH (KV-13VM20 only) |
| D1809 | 8-719-300-33 | DIODE RU-3AM | | L1201 L1401 | 1-410-521-11 1-410-521-11 | MICRO INDUCTOR 100UH MICRO INDUCTOR 100UH |
| D1810 D1811 | 8-719-961-04 9-908-006-01 8-719-961-04 | DIODE RGP10J DIODE FML-G12S DIODE RGP10J | | L1402 L1403 | 9-908-976-01 9-907-996-01 | COIL COIL |
| D1812 D1813 D1814 | 8-719-961-04 9-908-006-01 8-719-961-04 | DIODE RGP101 DIODE FML-G12S DIODE RGP101 | | L1404 L1405 | 1-410-514-11 1-410-521-11 | MICRO INDUCTOR 27UH MICRO INDUCTOR 100UH |
| D1816 D1817 D1819 | 8-719-300-33 8-719-300-33 8-719-815-85 | DIODE RU-3AM DIODE RU-3AM DIODE S6539 | | L1406 2 2 L1501 L1560 | L=410-521-11 1-410-516-11 9-908-977-01 | MICRO INDUCTOR 100UH MICRO INDUCTOR 39UH MICRO INDUCTOR 47UH |
| D1821 D1824 | 8-719-815-85 8-719-304-63 | DIODE S6539 DIODE RM11CV | | L1701 | 9-907-998-01 | COIL H-CHOKE |

| REF NO. | PART NO | DESCRIPTION | ; | REF NO | PART NO | | |
|--------------------------------|--|---|---------------|----------------------------|--|---|--|
| L1801 L1802 | 9-908-978-01 9-908-979-01 | COIL COIL | | | | <resistor></resistor> | |
| | | <pins &="" connector=""></pins> | | FR1241 FR1242 FR1242 | 1-217-418-00 1-260-052-11 1-247-688-11 | RES,FUSE 0 47 1/2W RES,FUSE 3 3 1/2W (KV-13' RES,FUSE 10 1/2W (KV-20V | |
| P1401 🗘 | 9-909-479-01 | PIN 6P (CMI1506-0301) | | FR1315 | 1-217-418-00 | RES.FUSE 0.47 1/2W | |
| P1501 P1501A | 9-908-977-01 9-907-993-01 | CONNECTOR ASSY,9P (L=300) PIN WAFER IL-G 9(2 5S) | | FR1417 /N | 1-212-934-00 1-217-198-01 | RES,FUSE 1.0 1/2W RES,FUSE 0 68 2W (KV-13\ | |
| P1502 | 9-907-994-01 | PIN MOLEX 5289-2A (7 5-5 LOCK) | | FR1422 | 9-909-899-01 | RES,FUSE 1 6 2W (KV-20V) | M20 only) |
| 1502 | 9-908-996-01 | CONNECTOR ASSY 3P MOLEX,250MM | | FR1423 <u></u> | 1-217-418-00 | RES,FUSE 0.47 1/2W | NOW DESIGNATION OF THE PARTY OF |
| 1502A | 9-907-994-01 | PIN MOLEX 5289-2A (7 5-5 LOCK) | | FR1428 FR1429 | 1-260-100-11 1-260-100-11 | RES,FUSE I 2K 1/2W (KV-1 RES,FUSE I 2K 1/2W (KV-1 | |
| 1503 | 9-908-997-01 | CONNECTOR ASSY,GIL-J,8P | | FR1518 | 1-260-084-11 | RES,FUSE 56 1/2W | 54 1420 Only) |
| 1504 | 9-908-000-01 9-908-057-01 | CONNECTOR ASSY,GIL-J,10P PIN WAFER IL-G 2(2 5S)STICK | - | FR1611 | 1-211-771-11 | RES,FUSE 4 7 1/2W | |
| 1601 1602 | 9-908-003-01 | CONNECTOR ASSY 5P (150MM) GIL-J | | FR1805 | 1-217-198-01 | RES,FUSE 0 68 2W | |
| | | | 450) | FR1806 FR1810 | 1-260-100-11 1-259-853-11 | RES,FUSE 1 2K 1/2W RES,FUSE 100 1W | |
| 1603 1604 | 9-908-004-01 9-908-058-01 | CONNECTOR ASSY ASSY, SP SHIELD WIRE (L=4 PIN WAFER IL-G 3(2 5S)STICK | 450) | FR1827 | 1-217-198-01 | RES,FUSE 0 68 2W | |
| 1801 | 9-908-987-01 | PIN 1P CONNECTOR | | FR1829 | 1-249-478-11 | RES,FUSE 2 2 1/2W | |
| 1802 | 9-908-985-01 | PIN 2P | | FR1838 | 1-217-469-00 | RES,FUSE 1 1W (KV-13VM | |
| 1803 | 9-908-002-01 | CONNECTOR ASSY 6P (150MM) GIL-J | | FR1838 R1201 | 1-216-347-11 1-249-426-11 | RES,FUSE 0 68 1W (KV-20) RES,CARBON(SMALL) 5 6 | K |
| 1804 | 9-908-987-01 | PIN 1P CONNECTOR | | R1202 R1203 | 1-249-431-11 1-249-836-11 | RES,CARBON(SMALL) 151 RES,CARBON(SMALL) 1 6 | |
| | | <transistor></transistor> | | R1204 | 1-249-836-11 | RES,CARBON(SMALL) 1 6 | |
| 21201 | 8-729-281-53 | TRANSISTOR 2SC1815-GR | | R1205 | 1-249-417-11 | RES,CARBON(SMALL) 1 0 | |
| Q1202 | 8-729-281-53 | TRANSISTOR 2SC1815-GR | | R1206 R1208 | 1-249-433-11 1-247-838-00 | RES,CARBON(SMALL) 201 RES,CARBON(SMALL) 2 0 | |
|)1203)1204 | 8-729-281-53 8-729-201-53 | TRANSISTOR 2SC1815-GR TRANSISTOR 2SA1015-GR | | R1212 | 1-247-818-11 | RES,CARBON(SMALL) 300 |) (KV-13VM20 only) |
| 21206 | 8-729-281-53 | TRANSISTOR 2SC1815-GR | | R1212 R1213 | 9-909-870-01 1-249-411-11 | RES,CARBON(SMALL) 750 RES,CARBON(SMALL) 330 | |
| 1252 | 8-729-281-53 | TRANSISTOR 2SC1815-GR | | i I | | | |
| 1401 | 8-729-232-26 | TRANSISTOR 2SC2668-OY (KV-13VM20 only) | | R1215 R1215 | 1-260-124-11 9-933-000-01 | RES,CARBON(SMALL) 120 RES,CARBON(SMALL) 911 | |
| 21401 | 8-729-266-82 | TRANSISTOR 2SC2668 (KV-20VM20 only) | | R1216 | 1-249-427-11 | RES,CARBON(SMALL) 6 8 | |
| Q1402 Q1402 | 8-729-206-04 8-729-821-87 | TRANSISTOR 2SD1554-LB (KV-13VM20 only) TRANSISTOR 2SD1878 (KV-20VM20 only) | | R1217 R1218 | 1-249-433-11 1-247-883-00 | RES,CARBON(SMALL) 201 RES,CARBON(SMALL) 150 | |
| Q1501 | 8-729-281-53 | TRANSISTOR 2SC1815-GR | | R1219 | 1-247-866-11 | RES,CARBON(SMALL) 30 | |
| Q1502 | 8-729-281-53 | TRANSISTOR 2SC1815-GR | | R1219 | 1-247-864-11 | RES,CARBON(SMALL) 24 | K (K V-20 V M/20 Only) |
| Q1503 | 8-729-201-53 | TRANSISTOR 2SA1015-GR | | R1220 R1220 | 1-249-439-11 1-249-438-11 | RES,CARBON(SMALL) 68 RES,CARBON(SMALL) 56 | |
| Q1504 | 8-729-140-96 | TRANSISTOR 2SD774-34 | | R1221 | 1-249-434-11 | RES, CARBON (SMALL) 27 | K |
| Q1505 Q1601 | 8-729-281-53 8-729-281-53 | TRANSISTOR 2SC1815-GR TRANSISTOR 2SC1815-GR | | R1222 R1223 | 1-249-433-11 1-249-431-11 | RES,CARBON(SMALL) 22 RES,CARBON(SMALL) 15 | |
| Q1801 | 8-729-301-42 | TRANSISTOR 2SD1135-C | | R1225 | 1-247-838-00 | RES,CARBON(SMALL) 20 | |
| Q1802 | 8-729-206-81 | TRANSISTOR 2SA9638B-0 | | R1226 | 1-247-881-00 | RES,CARBON(SMALL) 12 | |
| Q1803 | 8-719-803-82 | TRANSISTOR 2SC3468-E TRANSISTOR 2SC1815-GR | | R1227 R1227 | 1-249-436-11 1-259-454-11 | RES,CARBON(SMALL) 39 RES,CARBON(SMALL) 12 | |
| Q1804 Q1805 | 8-729-281-53 8-719-803-82 | TRANSISTOR 2SC3468-E | | R1228 | 1-249-433-11 | RES, CARBON (SMALL) 20 | K (KV-13VM20 only) |
| Q1806 | 8-729-281-53 | TRANSISTOR 2SC1815-GR | | R1228 R1229 | 1-249-432-11 1-249-426-11 | RES,CARBON(SMALL) 18 RES,CARBON(SMALL) 5 (| |
| Q1807 | 8-729-281-53 | TRANSISTOR 2SC1815-GR | | R1230 | 1-247-868-11 | RES, CARBON (SMALL) 36 | |
| Q1808 | 8-729-281-53 | TRANSISTOR 2SC1815-GR | | R1231 | 1-247-860-11 | RES,CARBON(SMALL) 16 | K |
| Q1809 | 8-729-201-53 | TRANSISTOR 2SC1015-GR | | R1233 | 1-259-491-11 | RES, CARBON (SMALL) 43 | 0K |
| Q1810 Q1811 | 8-729-281-53 8-729-140-96 | TRANSISTOR 2SC1815-GR TRANSISTOR 2SD774-34 | | R1234 R1235 | 1-249-411-11 1-249-435-11 | RES,CARBON(SMALL) 33 RES,CARBON(SMALL) 33 | |
| | | | | R1236 | 1-249-423-11 | RES, CARBON (SMALL) 3 | |
| Q1812 Q1813 | 8-729-281-53 8-729-281-53 | TRANSISTOR 2SC1815-GR TRANSISTOR 2SC1815-GR | | R1237 | 1-249-423-11 | RES,CARBON(SMALL) 3 | 3K |
| Q1814 | 8-729-803-76 | TRANSISTOR 2SA1371-E | | R1238 | 1-249-423-11 | RES,CARBON(SMALL) 3 : RES,CARBON(SMALL) 3 : | |
| Q1815 | 8-719-803-82 | TRANSISTOR 2SC3468-E | | R1239 | 1-249-423-11 1-247-834-11 | RES, CARBON (SMALL) 1: | 3K (KV-20VM20 only) |
| | | <relay></relay> | | R1240 R1251 | 9-908-983-01 1-249-434-11 | RES,CARBON(SMALL) 27 RES,CARBON(SMALL) 27 | |
| RL1801 / | ∆ 9-908-980-01 | RELAY | . Padilah Pal | R1252 | 1-249-427-11 | RES,CARBON(SMALL) 6 | |
| RL1802 ⊿ | <u>V</u> 9-908-980-01 | RELAY | | R1253 | 1-249-433-11 | RES, CARBON (SMALL) 22 | K |
| | | <thermistor></thermistor> | | R1301 R1302 | 1-249-410-11 1-249-411-11 | RES,CARBON(SMALL) 27 RES,CARBON(SMALL) 33 | |
| over the state of the state of | | | | R1303 | 1-249-438-11 | RES, CARBON (SMALL) 56 | K |
| | 1-809-539-11 | THERMISTOR POSITIVE (KV-13VM20 only) | | R1304 | 1-247-895-00 | RES,CARBON(SMALL) 47 | UK |
| TH1802 A | Z 9-909-889-01 Z 9-908-008-01 | THERMISTOR POSITIVE (KV-20VM20 only) THERMISTOR POSITIVE | | R1305 | 1-216-429-11 | RES, METAL OXIDE FILM | |
| | un 2001 (1990) - 4943 - 49−78 - 271 ° C | TDANSFODMED~ | | R1306 R1306 | 1-249-436-11 1-249-434-11 | RES,CARBON(SMALL) 39 RES,CARBON(SMALL) 27 | K (KV-20VM20 only) |
| | | <transformer></transformer> | | R1307 | 1-259-461-11 | RES,CARBON(SMALL) 24 RES,CARBON(SMALL) 9. | |
| | Ŋ 9-908-993-01 | TRANSFORMER HORIZONTAL DRIVING | | R1308 | 1-259-451-11 1-247-852-11 | RES,CARBON(SMALL) 7 | 5K (KV-20VM20 only) |
| | N 9-907-991-01 | FBT (KV-13VM20 only) | | R1309 | 1-249-399-11 | RES,CARBON(SMALL) 33 | |
| | ∑ 9-909-890-01 ∑ 9-908-011-01 | FBT (KV-20VM20 only) TRANSFORMER SMPS(STR-S6707, SONY)(KV- | 13VM20 only) | R1310 | 1-249-484-11 | RES,CARBON(SMALL) 6 | |
| | 7 9-909-901-01 | TRANSFORMER SMPS(STR-S6707, SONY)(KV- | | R1311 R1312 | 1-249-484-11 1-249-405-11 | RES, CARBON (SMALL) 6 RES, CARBON (SMALL) 10 | |
| | | | | | | | |

| REF NO | PART NO | DESCRIPTION | REMARK | REF NO | PART NO | DESCRIPTION | REMARK |
|----------------------------------|--|---|--------|-------------------------|--|---|-----------------------|
| R1314 R1316 R1401 R1402 | 1-260-099-11 1-249-424-11 1-247-842-11 1-247-816-11 | RES,CARBON(SMALL) 1 0K RES,CARBON(SMALL) 3 9K RES,CARBON(SMALL) 3 0K RES,CARBON(SMALL) 240 | | R1807 R1808 R1811 | 1-215-882-00 9-908-989-01 1-249-421-11 | RES,METAL OXIDE FILM 22 2W RESISTOR 0 22 2W RES,CARBON 2 2K 1/4W (KV-20VM20 only) | |
| R1403 | 1-249-425-11 | RES,CARBON(SMALL) 47K | | R1812 | 1-216-354-11 | RES,METAL OXIDE FILM 2 70 1W | |
| D1404 | 1 240 420 11 | RES,CARBON(SMALL) 1 8K (KV-13VM20 only) | | R1813 | 1-215-927-00 | RES,METAL OXIDE FILM 47K 3W | |
| R1404 R1404 | 1-249-420-11 1-249-417-11 | RES,CARBON(SMALL) 1 6K (KV-20VM20 only) | | R1814 | 1-260-099-11 | RES,CARBON(SMALL) 1 0K | |
| R1405 | 1-247-830-11 | RES,CARBON(SMALL) 910 (KV-13VM20 only) | | R1815 | 1-247-271-00 | RES,CARBON(SMALL) 20K RES,CARBON(SMALL) 47K | |
| R1406 | 1-247-903-00 | RES,CARBON(SMALL) 1 0M | | R1816 | 1-249-437-11 | RES,CARBON(SWALL) 47R | |
| R1407 R1408 | 1-247-903-00 1-260-094-11 | RES,CARBON(SMALL) 1 0M RES,CARBON(SMALL) 390 | | R1817 | 1-249-425-11 | RES,CARBON(SMALL) 47K | |
| R1409 | 1-260-101-11 | RES,CARBON(SMALL) 1 5K (KV-20VM20 only) | | R1818 | 1-249-429-11 | RES,CARBON(SMALL) 10K | |
| | | | | R1819 | 1-259-454-11 | RES,CARBON(SMALL) 12K | |
| R1410 | 1-249-417-11 | RES,CARBON(SMALL) 1 0K (KV-13VM20 only) | | R1820 | 1-249-421-11 | RES,CARBON(SMALL) 2 2K | |
| R1410 R1411 | 1-249-423-11 1-215-891-11 | RES,CARBON(SMALL) 3 3K (KV-20VM20 only) RES,METAL OXIDE 680 2W | | R1821 | 1-249-422-11 | RES,CARBON(SMALL) 2 7K | |
| R1412 | 1-249-411-11 | RES,CARBON(SMALL) 330 | | D1027 | 1 240 422 11 | DES CARRONICMALI \ 2.2V | |
| R1413 | 1-260-105-11 | RES,CARBON(SMALL) 3 3K | | R1822 R1823 | 1-249-423-11 1-249-429-11 | RES,CARBON(SMALL) 3 3K RES,CARBON(SMALL) 10K | |
| R1414 | 1-259-036-11 | RES,CARBON(SMALL) 15 | | R1824 | 1-249-425-11 | RES,CARBON(SMALL) 4 7K | |
| R1415 | 1-260-097-11 | RES,CARBON(SMALL) 680 | | R1825 | 1-249-425-11 | RES, CARBON (SMALL) 47K | |
| R1416 | 1-249-657-01 | RES,METAL OXIDE FILM 220 1/2W | | R1829 | 1-249-427-11 | RES,CARBON(SMALL) 6 8K | |
| | 1-249-414-11 | RES,CARBON(SMALL) 560 | | | | | |
| | 1-249-417-11 1-247-830-11 | RES,CARBON(SMALL) 1.0K (KV-13VM20 only) RES,CARBON(SMALL) 910 (KV-20VM20 only) | | R1833 | 1-249-425-11 | RES,CARBON(SMALL) 4 7K | |
| R1420 | 1-249-441-11 | RES,CARBON(SMALL) 100K | | R1834 R1835 | 1-249-425-11 1-249-432-11 | RES,CARBON(SMALL) 4 7K RES,CARBON(SMALL) 18K | |
| R1421 | 1-249-377-11 | RES,CARBON(SMALL) 0 68 | | R1836 | 1-249-433-11 | RES,CARBON(SMALL) 22K | |
| D1406 | 1-247-842-11 | DEC CARRONGMALL) 2 OV (VV 12VMOR and) | | R1837 | 1-260-111-00 | RES,CARBON(SMALL) 10K | |
| R1426 R1426 | 1-249-429-11 | RES,CARBON(SMALL) 3 0K (KV-13VM20 only) RES,CARBON(SMALL) 10K (KV-20VM20 only) | | | | | |
| | 1-247-838-00 | RES,CARBON(SMALL) 2.0K | 4.14 | | 9-908-986-11 | RESISTOR IOM | 0.000 |
| R1434 | 1-249-438-11 | RES,CARBON(SMALL) 56K | | R1842 | 1-259-615-11 | RES,CARBON(SMALL) 330K | |
| R1435 R1501 | 1-247-881-00 1-249-417-11 | RES,CARBON(SMALL) 120K RES,CARBON(SMALL) 1 0K | | VR1201 VR1301 | 1-241-763-11 9-908-994-01 | RESISTOR RH0638CS3R B472 HORIZONTAL(TA RESISTOR RH0638CJ2R B221 HORIZONTAL(TA | , |
| 1(1501 | 1-247-417-11 | RES,CINDON(SIMILE) I VII | | VR1401 | 1-241-760-11 | RESISTOR RH0638CN2R B331 HORIZONTAL(TA | |
| R1502 | 1-249-417-11 | RES,CARBON(SMALL) 1 0K | | VR1402 | 9-933-001-01 | RES, VARIABLE (KV-20VM20 only) | • |
| R1509 R1510 | 1-249-408-11 1-249-836-11 | RES,CARBON(SMALL) 180 RES,CARBON(SMALL) 1 6K (KV-13VM20 only) | | i i | | CHRISTICIAL | |
| R1510 | 9-909-870-01 | RES, CARBON (SMALL) 750 (KV-20VM20 only) | | 1 | | <switch></switch> | |
| R1511 | 1-249-836-11 | RES,CARBON(SMALL) 1 6K (KV-13VM20 only) | | SW1201 | 9-908-991-01 | SWITCH SVC | |
| R1511 R1512 | 9-909-870-01 1-249-836-11 | RES,CARBON(SMALL) 750 (KV-20VM20 only) RES,CARBON(SMALL) 1 6K (KV-13VM20 only) | | SW1301 | 9-908-991-01 | SWITCH SVC P12T21 | |
| R1512 | 9-909-870-01 | RES,CARBON(SMALL) 750 (KV-20VM20 only) | | SW1501 | 9-908-992-01 | SWITCH PUSH SPH2(LOCK TYPE) | |
| D (612 | 1 240 419 11 | DEC CADDOMEMALL) LOV (VV. 10VM)0 | | i | | AVA DICTOD. | |
| R1513 R1513 | 1-249-418-11 1-249-417-11 | RES,CARBON(SMALL) 1 2K (KV-13VM20 only) RES,CARBON(SMALL) 1 0K (KV-20VM20 only) | | į | | <varistor></varistor> | |
| R1514 | 1-249-418-11 | RES,CARBON(SMALL) 1 2K (KV-13VM20 only) | | VA1800 | 9-908-005-01 | VARISTOR SVC 561D-14A | |
| R1514 | 1-149-417-11 | RES,CARBON(SMALL) 1.0K (KV-20VM20 only) | | 1 4741000 | 7-700-(N)3-01 | | |
| R1515 R1515 | 1-249-418-11 1-149-417-11 | RES,CARBON(SMALL) 1 2K (KV-13VM20 only) RES,CARBON(SMALL) 1 0K (KV-20VM20 only) | | 1 | | <filter></filter> | |
| R1517 | 1-249-385-11 | RES,CARBON(SMALL) 2 2 | | [| | | |
| R1521 | 1-247-864-11 | RES,CARBON(SMALL) 24K | | X1401 X1501 | 1-557-706-11 1-567-505-11 | FILTER CSB503F38 OSCILLATOR CRYSTAL 3 58MHZ | |
| R1522 | 1-247-864-11 | RES,CARBON(SMALL) 24K | | 1 /1501 | 1-20%-702-11 | OSCILLATOR CRISTAL'S SOWITZ | |
| R1523 | 1-247-854-11 | RES,CARBON(SMALL) 9 1K | | | | <miscellaneous></miscellaneous> | |
| R1525 R1526 | 1-249-429-11 1-249-434-11 | RES,CARBON(SMALL) 10K RES,CARBON(SMALL) 27K | | 1 | | | ent a 1 to 2 to least |
| R1527 | 1-249-433-11 | RES,CARBON(SMALL) 22K | | | 1-551-188-99 | CORD POWER (KV-13VM20 only) | |
| | | | | P1801 🗘 | 9-909-888-01 | CORD POWER (KV-20VM20 only) | 24 LONG 4 75 A.V. |
| R1528 R1529 | 1-249-431-11 1-259-474-11 | RES,CARBON(SMALL) 15K RES,CARBON(SMALL) 82K | | ====== | | | |
| R1530 | 1-247-856-00 | RES,CARBON(SMALL) 11K | | 1 | * 9 | 9-901-976-01 C MOUNT COMPLETE | |
| R1532 | 1-247-897-11 | RES, CARBON (SMALL) 560K | | | | * | |
| R1533 | 1-247-887-00 | RES,CARBON(SMALL) 220K | | 1 | | | |
| R1535 | 1-249-425-11 | RES,CARBON(SMALL) 4 7K | | | | <capacitor></capacitor> | |
| R1536 | 1-249-414-11 | RES,CARBON(SMALL) 560 | | 1 | | | |
| R1537 R1538 | 1-249-414-11 1-249-414-11 | RES,CARBON(SMALL) 560 RES,CARBON(SMALL) 560 | | C1901 | 1-162-294-31 | CAP,CERAMIC 1000PF 50V | |
| R1539 | 1-260-095-11 | RES,CARBON(SMALL) 470 | | C1902 | 1-162-294-31 | CAP,CERAMIC 1000PF 50V | |
| D1601 | 1 240 422 11 | DEC CADDON/CMALL 22/ | | C1903 C1904 | 1-162-294-31 1-136-203-11 | CAP,CERAMIC 1000PF 50V CAP,CERAMIC 0 01MF 630V | |
| R1601 R1602 | 1-249-433-11 1-247-816-11 | RES,CARBON(SMALL) 22K RES,CARBON(SMALL) 240 | | 1 | 1 150 205 11 | | |
| R1603 | 1-249-438-11 | RES,CARBON(SMALL) 56K | | i | | <diode></diode> | |
| R1604 | 1-249-431-11 | RES,CARBON(SMALL) 15K | | | | | |
| R1605 | 1-249-385-11 | RES,CARBON(SMALL) 2 2 | | D1907 | 8-719-815-85 | DIODE \$6539 | |
| R1606 | 1-247-885-00 | RES,CARBON(SMALL) 180K | | D1908 D1909 | 8-719-815-85 8-719-815-85 | DIODE S6539 DIODE S6539 | |
| R1607 | 1-247-854-11 | RES,CARBON(SMALL) 9 1K RES,CARBON(SMALL) 1 5K | | 1 | 3 777 010 00 | | |
| R1608 R1612 | 1-249-419-11 1-249-419-11 | RES,CARBON(SMALL) 15K RES,CARBON(SMALL) 15K | | | | <coil></coil> | |
| R1614 | 1-246-168-11 | RES,CARBON(SMALL) 510 | | 1 | 4 400 | Mana Managara | |
| R1620 | 1-249-405-11 | RÉS,CARBON(SMALL) 100 | | L1901 | 1-408-082-00 | MICRO INDUCTOR 120UH | |
| R1801 | 9-908-010-11 | RES,CARBON(SMALL) 100 RES,CEMENT 17W | | 1 | | <pins &="" connector=""></pins> | |
| R1803 | 1-215-875-11 | RES,METAL OXIDE FILM 10K 1W | | 1 | | | |
| R1804 R1805 | 1-247-834-11 1-249-417-11 | RES,CARBON(SMALL) 1 3K RES,CARBON(SMALL) 1 0K | | P1901 | 9-908-056-01 | PIN 1P CONNECTOR | |
| | | • | | I. | | | |
| | | | | Í | | | |

| REF NO | PART NO | DESCRIPTION REM | IARK |
|----------|---|---|-------------|
| | | <transistor></transistor> | |
| Q1901 | 8 729 766 82 | TRANSISTOR 2SC2668 O | |
| Q1902 | 8 729 266 82 | TRANSISTOR 2SC2668 O | |
| Q1903 | 8 729 266 82 | TRANSISTOR 2SC2668 O | |
| | | <resistor></resistor> | |
| R1901 | 1 249 404 00 | RES CARBON(SMALL) 82 | |
| R1902 | 1 247 812 11 | RES CARBON(SMALL) 160 | |
| R1903 | 1 247 812 11 | RES CARBON(SMALL) 160 | |
| R1904 | 1 247 812 11 | RES CARBON(SMALL) 160 | |
| R1905 | 1 249 419 11 | RES CARBON(SMALL) I 5K | |
| R1906 | 1 249 419 11 | RES CARBON(SMALL) 15K | |
| R1907 | 1 249 419 11 | RES CARBON(SMALL) 1 5K | |
| R1908 | 1 260 101 11 | RES CARBON(SMALL) 1 5K | |
| R1909 | 1 260 101 11 | RES CARBON(SMALL) I 5K | |
| R1910 | 1 260 101 11 | RES CARBON(SMALL) 1 5K | |
| R1911 | 9 907 986 01 | RES METAL OXIDE FILM 12K 2W | |
| R1912 | 9 907 986 01 | RES METAL OXIDE FILM 12K 2W | |
| R1913 | 9 907 986 01 | RES METAL OXIDE FILM 12K 2W | |
| R1914 | 1 202 846 00 | RES CARBON(SMALL) 470K 1/2W (KV 13VM20 only) | |
| R1915 | 1 202 838 00 | RES CARBON(SMALL) 100K 1/2W (KV 13VM20 only) | |
| R1916 | 1 202 848 00 | RES CARBON(SMALL) 680K 1/2W (KV 13VM20 or ly) | |
| R1917 | 1 249 731 11 | RES CARBON(SMALL) 270K 1/2W (KV 13VM20 only) | |
| R1918 | 1 202 842 11 | RES CARBON(SMALL) 220K 1/2W | |
| R1919 | 1 249 405 11 | RES CARBON(SMALL) 100 | |
| VR1901 | 1 241 760 11 | RESISTOR RH0638CN2R B331HORIZONTAL(TA) | |
| VR1902 | 1 241 760 11 | RESISTOR RH0638CN2R B331HORIZONTAL(TA) | |
| VR1903 | 1 241 763 11 | RESISTOR RH0638CS3R B472HORIZONTAL(TA) | |
| VR1904 | 1 241 763 11 | RESISTOR RH0638CS3R B472HORIZONTAL(TA) | |
| VR1905 | 1 241 763 11 | RESISTOR RH0638CS3R B472HORIZONTAL(TA) | |
| VR1907 △ | 1 230 641 11 | RESISTOR RH022GDJ6J1AA(2 2M) (KV 13VM20 only) | |
| VR1908 ⚠ | 1 230 641 1i | RESISTOR RH092GDJ6J1AA(2 2M) (KV 13VM20 only) | |
| | <access< td=""><td>SORIES AND PACKING MATERIALS</td><td>S></td></access<> | SORIES AND PACKING MATERIALS | S > |
| AI | 1 467 828 11 | TRANSMITTER | |
| | 9 903 826 01 | REMOCON BATTERY COVER | |
| A2 | 9 008 084 01 | MANUAL INSTRUCTION(KV 13/20VM20) US | |
| A2 | 9 908 079 01 | MANUAL INSTRUCTION(KV 13/20VM20) CANADA | |

15-2. VIDEO

NOTE

The components identified by shading and mark Δ are critical for safety Replace only with part number specified

| REF NO | PART NO | DESCRIPTION | REMARK | REFNO | PART NO | DESCRIPTION | REMARK |
|--------------------------------------|--|--|--------|--------------------------------------|--|---|--------|
| KEFRO | TAKT NO | DESCRIPTION | ~ | | | Z | |
| | * 9-90 | 8-510-01 MA MOUNT COMPLETE | | C323 C324 C325 | 1-124-903-11 1-136-157-00 1-137-420-11 1-162-215-31 | CARELECT 1 0M 50V CARCERAMIC 0 022M 25V CAP PETP FILM 0 047U 100V CAP CERAMIC 47P 50V | |
| | | <capacitor></capacitor> | | C326 C327 | 1-162-209-31 | CAP CERAMIC 477 50V | |
| C101 C102 C103 C107 | 9-909-000-01 1-136-157-00 1-126-967-11 1-126-941-11 | CAP,ELECT 2200U 25V CAP CERAMIC 0 022MF 25V CAP,ELECT 47M 16V CAP,ELECT 470M 16V | | C328 C329 C330 C331 C332 | 1-162-286-31 1-162-284-31 1-162-280-11 1-136-157-00 1-136-157-00 | CAP,CERAMIC 220P 50V CAP,CERAMIC 150P 50V CAP,CERAMIC 82P 50V CAP,CERAMIC 0 022M 25V CAP,CERAMIC 0 022M 25V | |
| C109 | 9-909-482-01 | CAP,ELECT 100U 25V | | C333 | 1-126-967-11 | CAPELECT 47M 16V | |
| C110 C112 C201 C202 C203 | 1-104-665-11 1-124-122-11 1-106-385-00 1-124-903-11 1-102-129-00 | CARELECT 100M 25V CARELECT 100M 50V CAP PETP FILM 0 056U 100V CARELECT 1 0M 50V CARCERAMIC 0 01M 50V | | C334 C335 C338 C343 | 1-126-964-11 1-162-306-11 1-126-964-11 1-162-215-31 | CAP,ELECT 10M 25V CAP,CERAMIC 0 01M 16V CAP,ELECT 10M 25V CAP,CERAMIC 47P 50V | |
| C204 C205 C206 C207 C208 | 1-124-903-11 1-137-419-11 9-908-984-01 1-126-964-11 1-126-964-11 | CARELECT 1 0M 50V CAP PETP FILM 0 033U 100V CARELECT 1 0U 50V CARELECT 10M 25V CARELECT 10M 25V | | C344 C345 C346 C347 C348 | 1-162-215-31 1-162-199-31 1-162-215-31 1-162-205-31 1-126-964-11 | CAP,CERAMIC 47P 50V CAP,CERAMIC 10P 50V CAP,CERAMIC 47P 50V CAP,CERAMIC 18P 50V CAP,ELECT 10M 25V | |
| C209 C210 C211 C212 C213 | 1-126-963-11 1-126-963-11 1-126-595-11 1-137-387-11 1-126-967-11 | CARELECT 4 7M 50V CARELECT 4 7M 50V CARELECT 0 47U 50V CAP PETP FILM 0 001U 100V CARELECT 47M 16V | | C349 C350 C351 C352 C353 | 9-909-014-01 1-126-964-11 1-161-063-00 1-136-157-00 1-124-892-11 | CAP,CERAMIC 1000P 50V CAP,ELECT 10M 25V CAP,CERAMIC 0 1M 50V CAP,CERAMIC 0 022M 25V CAP,ELECT 47M 6 3V | |
| C214 C215 C216 C217 C218 | 1-162-294-31 1-126-966-11 1-124-916-11 9-909-007-01 9-909-007-01 | CAP,CERAMIC 1000P 50V CAP,ELECT 33M 16V CAP,ELECT 22M 16V CAP,CERAMIC 68P 50V CAP,CERAMIC 68P 50V | | C354 C355 C356 C357 C358 | 9-909-014-01 1-124-892-11 1-136-157-00 1-124-903-11 1-162-306-11 | CAP,CERAMIC 1000P 50V CAP,ELECT 47M 6 3V CAP,CERAMIC 0 022M 25V CAP,ELECT 1 0M 50V CAP,CERAMIC 0 01M 16V | |
| C219 C220 C221 C222 C224 | 1-162-286-31 1-126-963-11 1-126-963-11 1-102-129-00 1-124-903-11 | CAP,CERAMIC 220P 50V CAP,ELECT 4 7M 50V CAP,ELECT 4 7M 50V CAP,ELECT 1 0 M 50V CAP,ELECT 1 0M 50V | | C359 C361 C362 C363 C364 | 1-126-967-11 1-162-215-31 1-162-306-11 1-162-306-11 1-126-967-11 | CAP,ELECT 47M 16V CAP CERAMIC 47P 50V CAP,CERAMIC 0 01M 16V CAP,CERAMIC 0 01M 16V CAP,ELECT 47M 16V | |
| C225 C226 C227 C229 C232 | 1-124-903-11 1-126-959-11 1-104-666-11 1-102-129-00 1-104-666-11 | CAP,ELECT 1 0M 50V CAP,ELECT 0 47M 50V CAP,ELECT 220U 16V CAP,CERAMIC 0 01M 50V CAP,ELECT 220U 16V | | C365 C366 C367 C369 C370 | 1-136-157-00 1-126-964-11 1-104-665-11 1-126-964-11 1-162-306-11 | CARCERAMIC 0 022M 25V CARELECT 10M 25V CARELECT 100M 16V CARELECT 10M 25V CARCERAMIC 0 01M 16V | |
| C250 C301 C302 C303 C304 | 9-909-014-01 1-162-306-11 1-162-201-11 1-162-203-31 1-102-978-00 | CAP,CERAMIC 1000P 50V CAP,CERAMIC 0 01M 16V CAP,CERAMIC 12P 50V CAP,CERAMIC 15P 50V CAP CERAMIC 220P 50V | | C371 C372 C373 C374 C376 | 1-126-966-11 1-162-306-11 9-909-014-01 1-161-063-00 1-161-063-00 | CARELECT 33M 16V CARCERAMIC 0 01M 16V CARCERAMIC 1000P 50V CARCERAMIC 0 1M 50V CARCERAMIC 0 1M 50V | |
| C305 C306 C307 C308 C309 | 1-162-285-31 1-124-903-11 1-162-288-31 1-162-201-11 1-162-213-31 | CAP,CERAMIC 180P 50V CAP,ELECT 1 0M 50V CAP CERAMIC 330P 50V CAP,CERAMIC 12P 50V CAP,CERAMIC 39P 50V | | C381 C390 C402 C403 C404 | 1-161-063-00 1-162-288-11 1-126-967-11 1-126-964-11 1-126-963-11 | CAP,CERAMIC 0 IM 50V CAP,CERAMIC 330P 50V CAP,ELECT 47M 25V CAP,ELECT 10M 25V CAP,ELECT 4 7M 50V | |
| C310 C311 C312 C313 C314 | 1-102-942-00 1-126-964-11 1-126-964-11 1-136-157-00 1-137-420-11 | CAP,CERAMIC 5P 50V CAP,ELECT 10M 25V CAP,ELECT 10M 25V CAP,CERAMIC 0 022M 25V CAP PETP FILM 0 047U 100V | | C405 C406 C407 C408 C410 | 1-137-150-11 1-161-055-11 1-130-287-11 1-126-964-11 1-124-463-00 | CAP PETP FILM 0 01U 100V CAP PETP FILM 0 022U 50V CAP PETP FILM 0 0039U 100V CAP,ELECT 10M 25V CAP,ELECT 0 1M 50V | |
| C315 C316 C317 C318 C319 | 1-162-306-11 1-124-903-11 1-124-903-11 1-137-150-11 1-126-964-11 | CAP,CERAMIC 0 01M 16V CAP,ELECT 1 0M 50V CAP,ELECT 1 0M 50V CAP PETP FILM 0 01U 100V CAP,ELECT 10M 25V | | C411 C412 C413 C414 C415 | 1-130-277-11 1-124-463-00 1-126-963-11 1-124-463-00 1-137-150-11 | CAP PETP FILM 0 0015U 100V CAP,ELECT 0 01M 50V CAP,ELECT 4 7M 50V CAP,ELECT 0 1M 50V CAP PETP FILM 0 01U 100V | |
| C320 C321 C322 | 9-909-014-01 1-124-903-11 1-161-055-11 | CAP,CERAMIC 1000P 50V CAP,ELECT 1 0M 50V CAP PETP FILM 0 022M 50V | | C416 C417 C418 C419 | 1-124-903-11 1-126-966-11 1-130-281-11 1-137-150-11 | CAP,ELECT 1 0M 50V CAP,ELECT 33M 16V CAP PETP FILM 0 002U 100V CAP PETP FILM 0 01U 100V | |

| REF NO | PART NO | DESCRIPTION | REMARK | REFNO | PART NO | DESCRIPTION | REMARK |
|--|--|--|--------|--|--|--|--------|
| C420 C421 C422 C423 C424 | 1-137-150-11 1-137-398-11 1-102-978-00 1-126-964-11 1-137-350-01 | CAP,PETP FILM 0 01U 100V CAP,PETP FILM 0 068U 100V CAP,CERAMIC 220P 50V CAP,ELECT 10M 25V CAP,PETP FILM 0 001U 100V | | C821 C822 C823 C824 C826 | 1-162-275-11 1-162-275-11 1-162-275-11 1-162-275-11 1-102-949-11 | CAP,CERAMIC 22P 50V CAP,CERAMIC 22P 50V CAP,CERAMIC 22P 50V CAP,CERAMIC 22P 50V CAP,CERAMIC 12P 50V | |
| C426 C451 C453 C501 C503 | 1-124-903-11 1-126-964-11 1-126-964-11 9-908-541-01 1-126-967-11 | CAP,ELECT 1 0M 50V CAP,ELECT 10M 25V CAP,ELECT 10M 25V CAP ELECT 0 047F-5 5V CAP,ELECT 47M 16V | | C830 C841 C842 C843 C844 | 1-162-306-11 1-101-340-11 1-101-340-11 1-104-665-11 1-162-306-11 | CAP,CERAMIC 0 01M 16V CAP,CERAMIC 120F 50V CAP,CERAMIC 120F 50V CAP,ELECT 100M 16V CAP,CERAMIC 0 01M 16V | |
| C504 C505 C506 | 1-126-967-11 1-126-967-11 1-126-967-11 | CAP,ELECT 47M 16V CAP,ELECT 47M 16V CAP,ELECT 47M 16V | | C845 | 1-124-903-11 | CAP,ELECT 1 0M 50V <diode></diode> | |
| C507 C508 C509 C510 C511 C512 | 1-126-967-11 1-162-306-11 9-908-984-01 1-162-306-11 1-162-306-11 9-909-014-01 | CAP,ELECT 47M 16V CAP,CERAMIC 0 01M 16V CAP,ELECT 1 0U 50V CAP,CERAMIC 0 01M 16V CAP,CERAMIC 0 01M 16V CAP,CERAMIC 1000P 50V | | D101 D103 D104 D105 D106 | 8-719-911-11 8-719-911-11 8-719-911-11 8-719-200-02 8-719-200-02 | DIODE 1S1585 DIODE 1S1585 DIODE 1S1585 DIODE 10E-2 DIODE 10E-2 | |
| C513 C516 C517 C518 C519 C520 | 9-909-014-01 1-162-306-11 1-126-964-11 1-162-306-11 1-162-306-11 1-162-306-11 | CAP,CERAMIC 1000P 50V CAP,CERAMIC 0 01M 16V CAP,ELECT 10M 25V CAP,CERAMIC 0 01M 16V CAP,CERAMIC 0 01M 16V CAP,CERAMIC 0 01M 16V | | D201 D202 D204 D205 D209 | 8-719-911-11 8-719-911-11 8-719-911-11 8-719-911-11 8-719-911-11 | DIODE 181585 DIODE 181585 DIODE 181585 DIODE 181585 DIODE 181585 | |
| C521 C522 C524 C525 C526 | 1-162-306-11 1-162-306-11 1-162-306-11 1-162-306-11 1-162-306-11 | CARCERAMIC 0 01M 16V | | D210 D301 D302 D303 D304 | 8-719-911-11 8-719-911-11 8-719-911-11 8-719-911-11 8-719-911-11 | DIODE 181585 DIODE 181585 DIODE 181585 DIODE 181585 DIODE 181585 | |
| C527 C528 C529 C530 | 1-162-306-11 1-162-306-11 1-162-306-11 1-162-306-11 | CAP,CERAMIC 0 01M 16V CAP,CERAMIC 0 01M 16V CAP,CERAMIC 0 01M 16V CAP,CERAMIC 0 01M 16V | | D305 D306 D401 D410 D501 | 8-719-911-11 8-719-911-11 8-719-911-11 8-719-911-11 8-719-200-02 | DIODE IS1585 DIODE IS1585 DIODE IS1585 DIODE IS1585 DIODE 10E-2 | |
| C532 C533 C534 C536 C580 | 1-162-306-11 1-162-207-31 1-162-207-31 1-162-306-11 1-104-666-11 | CAP,CERAMIC 0 01M 16V CAP CERAMIC 22P 50V CAP CERAMIC 22P 50V CAP,CERAMIC 0 01M 16V CAP,ELECT 220U 16V | | D502 D503 D504 D505 D701 | 8-719-911-11 8-719-200-02 8-719-911-11 8-719-911-11 8-719-911-11 | DIODE 1S1585 DIODE 10E-2 DIODE 1S1585 DIODE 1S1585 DIODE 1S1585 | |
| C701 C702 C703 C704 C705 | 1-104-665-11 1-126-935-11 1-126-964-11 1-126-964-11 1-126-964-11 | CAPELECT 100M 16V CAPELECT 470U 10V CAPELECT 10M 16V CAPELECT 10M 16V CAPELECT 10M 16V | | D801 D802 ZD101 ZD103 ZD401 | 8-719-911-11 8-719-911-11 8-719-921-93 8-719-982-27 8-719-109-89 | DIODE 1S1585 DIODE 1S1585 DIODE MTZ15C DIODE MTZ-33C DIODE MTZ5,6B | |
| C706 C707 C708 C709 C710 C711 | 1-126-964-11 1-126-967-11 1-162-306-11 1-126-967-11 1-162-306-11 1-126-935-11 | CAPELECT 10M 16V CAPELECT 47M 16V CAPCERAMIC 0 01M 16V CAPCERAMIC 0 01M 16V CAPELECT 470UF 16V | | ZD402 ZD501 ZD502 ZD503 ZD504 ZD505 | 8-719-109-89 8-719-921-67 8-719-109-89 8-719-921-88 8-719-921-88 | DIODE MTZ5,6B DIODE MTZ8 2B DIODE MTZ5,6B DIODE MTZ13B DIODE MTZ13B | |
| C712 C713 C714 C715 C716 | 1-162-306-11 1-126-967-11 1-162-306-11 1-126-964-11 1-124-903-11 | CAP,CERAMIC 0 01M 16V CAP,ELECT 47M 16V CAP,CERAMIC 0 01M 16V CAP,ELECT 10M 16V CAP,ELECT 1 0M 50V | | ZD506 ZD507 ZD508 ZD509 ZD510 | 8-719-921-88 8-719-921-88 8-719-921-88 8-719-921-88 8-719-921-88 | DIODE MTZ13B DIODE MTZ13B DIODE MTZ13B DIODE MTZ13B DIODE MTZ13B | |
| C717 C719 C721 C750 C751 | 1-124-925-11 1-102-125-11 1-124-903-11 1-137-419-11 1-162-201-11 | CAP,ELECT 2 2M 50V CAP CERAMIC 4700P 50V CAP,ELECT 1.0M 50V CAP PETP FILM 0 033U 100V CAP,CERAMIC 12P 50V | | ZD511 ZD512 ZD520 ZD521 ZD598 | 8-719-921-88 8-719-921-88 8-719-921-88 8-719-921-88 8-719-109-89 | DIODE MTZ13B DIODE MTZ13B DIODE MTZ13B DIODE MTZ13B | |
| C802 C803 C804 C805 C806 | 1-126-964-11 9-909-014-01 1-137-413-11 1-137-417-11 1-162-306-11 | CAP, ELECT 10M 16V CAP, CERAMIC 1000P 50V CAP PETP FILM 0 003U 100V CAP PETP FILM 0 015U 100V CAP, CERAMIC 0 01M 16V | | ZD599 ZD701 ZD705 ZD706 ZD710 | 8-719-109-89 8-719-109-89 8-719-109-89 8-719-109-89 8-719-921-89 | DIODE MTZ5 6B DIODE MTZ5 6B DIODE MTZ5 6B DIODE MTZ5 6B DIODE MTZ13C | |
| C808 C809 C810 C811 C812 | 1-137-419-11 9-908-984-01 1-124-925-11 1-104-665-11 1-162-306-11 | CAP PETP FILM 0 033U 100V CAP,ELECT 1 0U 50V CAP,ELECT 2 2M 50V CAP,ELECT 100M 16V CAP,CERAMIC 0 01M 16V | | ZD711 ZD805 ZD806 ZD807 ZD808 | 8-719-921-89 8-719-109-89 8-719-109-89 8-719-109-89 8-719-109-89 | DIODE MTZI3C DIODE MTZ5 6C DIODE MTZ5 6C DIODE MTZ5 6C DIODE MTZ5 6C | |
| C814 C815 C816 C818 C820 | 1-102-973-11 1-124-903-11 1-102-947-11 1-162-207-31 1-162-203-31 | CAP,CERAMIC 100P 50V CAP,ELECT 1.0M 50V CAP,CERAMIC 10P 50V CAP CERAMIC 22P 50V CAP,CERAMIC 15P 50V | | ZD809 ZD810 ZD811 ZD812 | 8-719-109-89 8-719-109-89 8-719-109-89 8-719-109-89 | DIODE MTZ5 6C DIODE MTZ5 6C DIODE MTZ5 6C DIODE MTZ5 6C | |

| C101 8-759-982-13 IC, RU7812 Q305 9-908-533-01 TRANSISTOR SCI24S8-YGR P GAST-10 Q305 9-908-533-01 TRANSISTOR SCI20M-TP TRANSISTOR SCI24S8-YGR P GAST-10 GAST-10-12-12-12-12-12-12-12-12-12-12-12-12-12- | RK |
|--|----|
| Col. S. 759.982.0 C. R. C. R. C. C. C. C. | |
| C201 9-908-524-01 C, LA7184 O312 8-729-230-79 TRANSISTOR 2SC2458-YCR | |
| C301 9-908-539-01 IC, LA7285 C301 C301 S-729-119-70 TRANSISTOR 2SAI175-HFE ICS02 9-908-535-01 IC, X24C02 8D Q402 9-908-535-01 TRANSISTOR 2SAI175-HFE ICS03 9-908-534-01 IC, C47455 Q403 9-908-535-01 TRANSISTOR XC103M-TP ICS03 9-908-534-01 IC, GL7445 Q451 8-729-230-79 TRANSISTOR KC103M-TP ICS05 9-908-535-01 IC, MC144110 C451 8-729-230-79 TRANSISTOR KC103M-TP ICS05 9-908-535-01 IC, LA7016 Q501 9-908-553-01 IC701 8-759-800-81 IC, LA7016 Q501 9-908-553-01 ICR02 8-759-801-81 IC, LA7016 Q502 9-908-553-01 ICS03 9-908-553-01 IC, LA7016 Q503 9-908-553-01 ICS04 8-759-187-22 IC, LC7458B-04 Q701 8-729-119-76 TRANSISTOR KC103M-TP ICS03 9-908-508-40-01 IC, LA7958N-22SD Q702 8-729-119-76 TRANSISTOR KC103M-TP ICS03 9-908-508-40-01 IC, LA7958N-22SD Q702 8-729-119-76 TRANSISTOR SA1175-HFE ICS03 9-908-508-40-01 IC, LA7958N-22SD Q702 8-729-230-79 ICR04 8-759-947-59 IC, PST-523C Q704 8-729-230-79 TRANSISTOR SCI815-GR ICR05 R-759-197-59 IC, PST-523C Q706 8-729-230-79 TRANSISTOR SCI815-GR ICR06 R-759-187-22 IC, ICA758B-04 Q705 8-729-230-79 TRANSISTOR SCI815-GR ICR06 R-759-187-29 IC, ICA758B-04 Q705 8-729-230-79 TRANSISTOR SCI815-GR ICR06 R-759-187-29 IC, ICA758B-04 Q705 8-729-230-79 TRANSISTOR SCI815-GR ICR06 R-759-187-29 IC, ICA758B-04 Q707 R-729-230-79 TRANSISTOR SCI815-GR ICR06 R-759-187-29 IC, ICA758B-04 Q707 R-729-230-79 TRANSISTOR SCI815-GR ICR06 R-759-187-29 ICR06 R-729-230-79 R-729-2 | |
| CS03 | |
| IC701 | |
| C802 9-908-549-01 IC, LA7945N 22SD IC, M50554-236SP IC, M50554-236SP IC, PST-523G Q704 8-729-230-79 TRANSISTOR 2SC1815-GR Q704 8-729-230-79 TRANSISTOR 2SC1815-GR Q704 8-729-230-79 TRANSISTOR 2SC1815-GR Q705 8-729-119-76 TRANSISTOR 2SC1815-GR Q706 8-729-230-79 TRANSISTOR 2SC1815-GR Q707 9-908-553-01 TRANSISTOR 2SC1815-GR Q803 9-908-981-01 TRANSISTOR 2SC1815-GR Q803 9-908-981-01 TRANSISTOR 2SC1815-GR Q803 9-908-981-01 TRANSISTOR 2SC1815-GR Q804 9-909-010-01 TRANSISTOR EXC198-TP-PL Q804 9-909-0 | |
| COIL> | |
| L302 | |
| L307 | |
| R021 L-249-417-11 RES,CARBON(SMALL) 1 0K | |
| L316 | |
| R108 1-249-418-11 RES,CARBON(SMALL) 1 2K | |
| L401 1-410-685-31 MICRO INDUCTOR 820MH L402 1-410-676-31 MICRO INDUCTOR 0 015H R110 J-249-424-11 RES,CARBON(SMALL) 3 9K L404 1-408-421-00 MICRO INDUCTOR 100MH R111 1-249-424-11 RES,CARBON(SMALL) 3 9K L501 1-408-421-00 MICRO INDUCTOR 100MH R201 1-249-423-11 RES,CARBON(SMALL) 3 3 K | |
| R203 1-247-881-00 RES,CARBON(SMALL) 120K | |
| L505 1-408-421-00 MICRO INDUCTOR 100MH R205 1-249-433-11 RES,CARBON(SMALL) 22K R206 1-249-430-11 RES,CARBON(SMALL) 12K R206 1-249-430-11 RES,CARBON(SMALL) 12K R206 1-249-430-11 RES,CARBON(SMALL) 680K | |
| L704 1-408-421-00 MICRO INDUCTOR 100MH R208 1-247-897-11 RES,CARBON(SMALL) 560K L801 1-408-421-00 MICRO INDUCTOR 100MH R209 1-247-399-11 RES,CARBON(SMALL) 680K | |
| L802 | |
| TRANSISTOR R214 1-247-903-00 RES, CARBON (SMALL) 1 0K | |
| R215 1-247-883-00 RES,CARBON(SMALL) 150K | |
| Q105 8-729-803-86 TRANSISTOR 2SD1207T R219 1-249-414-11 RES,CARBON(SMALL) 560 Q106 9-908-553-01 TRANSISTOR KRC103M-TP R220 1-249-414-11 RES,CARBON(SMALL) 560 | |
| Q201 8-729-230-79 TRANSISTOR 2SC2458-YGR R221 1-249-430-11 RES,CARBON(SMALL) 12K Q202 8-729-230-79 TRANSISTOR 2SC2458-YGR R222 1-249-414-11 RES,CARBON(SMALL) 560 Q203 8-729-230-79 TRANSISTOR 2SC2458-YGR R223 1-247-899-11 RES,CARBON(SMALL) 680K | |
| Q204 8-729-230-79 TRANSISTOR 2SC2458-YGR R224 1-249-439-11 RES,CARBON(SMALL) 68K Q205 8-729-230-79 TRANSISTOR 2SC2458-YGR R225 1-249-417-11 RES,CARBON(SMALL) 1 0K R226 1-249-417-11 RES,CARBON(SMALL) 1 0K | |
| Q302 8-729-119-76 TRANSISTOR 2SA1175-HFE R227 1-249-441-11 RES,CARBON(SMALL) 100K R228 1-249-434-11 RES,CARBON(SMALL) 27K | |
| R229 1-249-431-11 RES,CARBON(SMALL) 15K R230 1-249-421-11 RES,CARBON(SMALL) 2 2K R231 1-249-441-11 RES,CARBON(SMALL) 100K R232 1-249-435-11 RES,CARBON(SMALL) 33K | |

| REFNO | PART NO | DESCRIPTION | REMARK | REFNO | PART NO | DESCRIPTION | REMARK |
|--------------------------------------|--|--|--------|--------------------------------------|--|--|--------|
| R235 R236 R237 R238 R239 | 1-249-439-11 1-249-436-11 1-249-426-11 1-249-426-11 1-249-436-11 | RES,CARBON(SMALL) 68K RES,CARBON(SMALL) 39K RES,CARBON(SMALL) 5 6K RES,CARBON(SMALL) 5 6K RES,CARBON(SMALL) 39K | | R412 R413 R414 R415 R416 | 1-249-427-11 1-249-427-11 1-249-897-11 1-249-427-11 1-249-424-11 | RES CARBON FILM 6 8K RES CARBON FILM 6 8K RES CARBON FILM 560K RES CARBON FILM 6 8K RES CARBON FILM 3 9K | |
| R241 R242 R243 R245 R247 | 1-249-426-11 1-249-417-11 1-249-417-11 1-247-881-00 1-249-421-11 | RES,CARBON(SMALL) 5 6K RES,CARBON(SMALL) 1 0K RES,CARBON(SMALL) 1 0K RES,CARBON(SMALL) 120K RES,CARBON(SMALL) 2 2K | | R417 R418 R419 R420 R421 | 1-249-429-11 1-247-891-00 1-249-435-11 1-249-393-11 1-249-393-11 | RES CARBON FILM 10K RES CARBON FILM 330K RES CARBON FILM 33K RES CARBON FILM 10 RES CARBON FILM 10 | |
| R248 R249 R301 R302 R303 | 1-249-421-11 1-249-417-11 1-249-420-11 1-249-423-11 1-249-425-11 | RES,CARBON(SMALL) 2 2K RES,CARBON(SMALL) 1 0K RES,CARBON(SMALL) 1 8K RES,CARBON(SMALL) 3 3K RES,CARBON(SMALL) 4 7K | | R422 R423 R424 R425 R426 | 1-249-393-11 1-249-435-11 1-249-401-11 1-249-429-11 1-249-425-11 | RES CARBON FILM 10 RES CARBON FILM 33K RES CARBON FILM 47 RES CARBON FILM 10K RES CARBON FILM 4 7K | |
| R304 R305 R306 R307 R308 | 1-249-423-11 1-249-425-11 1-249-416-11 1-249-426-11 1-249-422-11 | RES,CARBON(SMALL) 3 3K RES,CARBON(SMALL) 4 7K RES,CARBON(SMALL) 820 RES,CARBON(SMALL) 5 6K RES,CARBON(SMALL) 2 7K | | R427 R428 R429 R430 R432 | 1-249-429-11 1-249-406-11 1-249-404-11 1-249-428-11 1-249-429-11 | RES CARBON FILM 10K RES CARBON FILM 120 RES CARBON FILM 82 RES CARBON FILM 8 2K RES CARBON FILM 10K | |
| R309 R310 R311 R312 R313 | 1-249-415-11 1-249-417-11 1-247-903-00 1-247-903-00 1-249-424-11 | RES,CARBON(SMALL) 680 RES,CARBON(SMALL) 1 0K RES,CARBON(SMALL) 1 0M RES,CARBON(SMALL) 1 0M RES,CARBON(SMALL) 3 9K | | R433 R434 R436 R437 R451 | 1-247-899-11 1-249-425-11 1-249-433-11 1-249-425-11 1-249-437-11 | RES CARBON FILM 680K RES CARBON FILM 4 7K RES CARBON FILM 22K RES CARBON FILM 4 7K RES CARBON FILM 47K | |
| R314 R315 R316 R317 R318 | 1-249-420-11 1-249-421-11 1-249-430-11 1-249-416-11 1-249-418-11 | RES,CARBON(SMALL) 1 8K RES,CARBON(SMALL) 2 2K RES,CARBON(SMALL) 12K RES,CARBON(SMALL) 320 RES,CARBON(SMALL) 1 2K | | R452 R453 R454 R460 R501 | 1-249-437-11 1-249-412-11 1-249-417-11 1-249-422-11 1-249-417-11 | RES CARBON FILM 47K RES CARBON FILM 390 RES CARBON FILM 1 0K RES CARBON FILM 2 7K RES CARBON FILM 1 0K | |
| R319 R320 R321 R322 R323 | 1-249-421-11 1-249-430-11 1-249-429-11 1-249-435-11 1-249-410-11 | RES,CARBON(SMALL) 2 2K RES,CARBON(SMALL) 12K RES,CARBON(SMALL) 10K RES,CARBON(SMALL) 33L RES,CARBON(SMALL) 270 | | R502 R503 R504 R505 R506 | 1-249-753-15 1-249-439-11 1-249-429-11 1-249-425-11 1-249-439-11 | RES CARBON FILM 4 7M RES CARBON FILM 68K RES CARBON FILM 10K RES CARBON FILM 4 7K RES CARBON FILM 68K | |
| R324 R325 R326 R327 R328 | 1-249-414-11 1-249-433-11 1-249-430-11 1-249-421-11 1-249-422-11 | RES,CARBON(SMALL) 560 RES,CARBON(SMALL) 22K RES,CARBON(SMALL) 12K RES,CARBON(SMALL) 2 2K RES,CARBON(SMALL) 2 7K | | R507 R508 R509 R510 R511 | 1-259-880-11 1-249-417-11 1-249-439-11 1-249-429-11 1-249-425-11 | RES CARBON FILM 2 2M RES CARBON FILM 1 0K RES CARBON FILM 68K RES CARBON FILM 10K RES CARBON FILM 4 7K | |
| R329 R330 R331 R332 R339 | 1-249-425-11 1-249-421-11 1-249-409-11 1-249-418-11 1-249-417-11 | RES,CARBON(SMALL) 4 7K RES,CARBON(SMALL) 2 2K RES,CARBON(SMALL) 220 RES,CARBON(SMALL) 1 2K RES,CARBON(SMALL) 1 0K | | R512 R513 R514 R515 R516 | 1-249-425-11 1-249-421-11 1-249-421-11 1-249-435-11 1-249-435-11 | RES CARBON FILM 4 7K RES CARBON FILM 2 2K RES CARBON FILM 2 2K RES CARBON FILM 33K RES CARBON FILM 33K | |
| R340 R341 R342 R343 R344 | 1-249-409-11 1-249-409-11 1-249-417-11 1-249-417-11 1-249-421-11 | RES,CARBON(SMALL) 220 RES,CARBON(SMALL) 220 RES,CARBON(SMALL) 1 0K RES,CARBON(SMALL) 1 0K RES,CARBON(SMALL) 2 2K | | R517 R518 R519 R520 R521 | 1-249-425-11 1-249-434-11 1-249-434-11 1-249-429-11 1-249-429-11 | RES CARBON FILM 4 7K RES CARBON FILM 27K RES CARBON FILM 27K RES CARBON FILM 10K RES CARBON FILM 10K | |
| R345 R346 R347 R348 R349 | 1-249-412-11 1-249-425-11 1-249-418-11 1-249-431-11 1-247-908-00 | RES,CARBON(SMALL) 390 RES,CARBON(SMALL) 4 7K RES,CARBON(SMALL) 1 2K RES,CARBON(SMALL) 15K RES,CARBON(SMALL) 1 0M | | R522 R523 R524 R525 R526 | 1-249-429-11 1-249-429-11 1-249-429-11 1-249-429-11 1-249-429-11 | RES CARBON FILM 10K RES CARBON FILM 10K RES CARBON FILM 10K RES CARBON FILM 10K RES CARBON FILM 10K | |
| R350 R351 R352 R353 R355 | 1-249-425-11 1-249-425-11 1-249-440-11 1-249-417-11 1-249-439-11 | RES,CARBON(SMALL) 4 7K RES,CARBON(SMALL) 4 7K RES,CARBON(SMALL) 82K RES,CARBON(SMALL) 1 0K RES,CARBON(SMALL) 68K | | R527 R529 R530 R531 R532 | 1-249-429-11 1-249-417-11 1-249-417-11 1-249-417-11 1-249-417-11 | RES CARBON FILM 10K RES CARBON FILM 1 0K RES CARBON FILM 1 0K RES CARBON FILM 1 0K RES CARBON FILM 1 0K | |
| R356 R371 R372 R380 R381 | 1-249-438-11 1-249-424-11 1-249-413-11 1-249-423-11 1-249-428-11 | RES,CARBON(SMALL) 56K RES,CARBON(SMALL) 3 9K RES,CARBON(SMALL) 470 RES,CARBON(SMALL) 3 3K RES,CARBON(SMALL) 8 2K | | R533 R534 R535 R536 R537 | 1-249-417-11 1-249-425-11 1-249-441-11 1-249-425-11 1-249-425-11 | RES CARBON FILM 1 0K RES CARBON FILM 4 7K RES CARBON FILM 100K RES CARBON FILM 4 7K RES CARBON FILM 4 7K | |
| R382 R401 R403 R404 R405 | 1-249-419-11 1-249-411-11 1-249-416-11 1-249-410-11 1-249-426-11 | RES,CARBON(SMALL) 1 5K RES,CARBON(SMALL) 330 RES,CARBON(SMALL) 820 RES,CARBON(SMALL) 270 RES,CARBON(SMALL) 5 6K | | R538 R539 R540 R541 R541 | 1-249-441-11 1-249-425-11 1-249-425-11 1-249-425-11 1-249-425-11 | RES CARBON FILM 100K RES CARBON FILM 4 7K RES CARBON FILM 4 7K RES CARBON FILM 4 7K RES CARBON FILM 4 7K | |
| R406 R407 R408 R409 R410 | 1-249-425-11 1-249-435-11 1-249-430-11 1-249-436-11 1-249-436-11 | RES,CARBON(SMALL) 47K RES,CARBON(SMALL) 33K RES CARBON FILM 12K RES CARBON FILM 39K RES CARBON FILM 39K | | R543 R546 R552 R555 R556 | 1-249-425-11 1-249-425-11 1-249-417-11 1-249-417-11 1-249-425-11 | RES CARBON FILM 4 7K RES CARBON FILM 4 7K RES CARBON FILM 1 0K RES CARBON FILM 1 0K RES CARBON FILM 4 7K | |
| R411 | 1-249-439-11 | RES CARBON FILM 68K | | R557 | 1-249-414-11 | RES CARBON FILM 560 | |

| REFNO | PART NO | DESCRIPTION | REMARK | REFNO | PART NO | DESCRIPTION | REMARK |
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| R558 R701 R559 R560 | 9-909-003-01 1-249-409-11 1-249-414-11 1-249-414-11 | RES PRW 3 3/2W RES CARBON FILM 220 RES CARBON FILM 560 RES CARBON FILM 560 | | VR305 VR401 VR701 | 1-241-761-11 1-241-768-11 9-909-009-01 | RES,ADJ CERMENT 1K RES,ADJ CERMENT 220K RESISTOR,VR 10K | |
| R580 | 1-249-417-11 | RES CARBON FILM 1 0K | | - | | <jack></jack> | |
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| R709 R710 | 1-249-417-11 1-249-399-11 | RES CARBON FILM 1 0K RES CARBON FILM 33 | | X501 X502 | 1-567-662-11 9-909-002-01 | RESONATOR X-TAL,32 768KHZ 2*610PPM | |
| R712 | 1-249-430-11 | RES CARBON FILM 12K | | X801 | 1-569-126-11 | RESONATOR,FCR6 0MCT2 | |
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| R715 R719 | 1-249-411-11 1-249-435-11 | RES CARBON FILM 330 RES CARBON FILM 33K | | VR401 | 1-241-768-11 | RES,ADJ CERMENT 220K | |
| R720 | 1-247-887-00 | RES CARBON FILM 220K | | FIX1 | 9-909-339-01 9-909-340-01 | EXTENSION CABLE(12Px3) EXTENSION CABLE(12P) | |
| R721 R722 | 1-249-426-11 1-249-426-11 | RES CARBON FILM 5 6K RES CARBON FILM 5 6K | | FL401 | 9-908-532-01 | FILTER LPF 12KHXZ(JH-1058) | |
| R723 | 1-249-417-11 | RES CARBON FILM 1 0K | | ====== | | | |
| R724 R726 | 1-249-441-11 1-249-426-11 | RES CARBON FILM 100K RES CARBON FILM 5 6K | | | * 9-9() | 8-656-01 RP MOUNT COMPLETE | |
| R727 R728 | 1-249-417-11 9-909-884-01 | RES CARBON FILM 1 0K RES CARBON FILM 91K | | | | * * * * * * * * * * * * * * * * * | |
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| R770 R802 | 1-249-413-11 1-249-402-11 | RES CARBON FILM 470 RES CARBON FILM 56 | | C603 | 1-161-063-00 1-162-211-31 | CAP,CERAMIC 0 1M 50V CAP,CERAMIC 33P 50V | |
| R803 R804 | 1-249-402-11 1-249-402-11 | RES CARBON FILM 56 RES CARBON FILM 56 | | C605 | 1-162-199-31 | CAP, CERAMIC 10P 50V | |
| R805 | 1-249-402-11 | RES CARBON FILM 56 | | C606 | 1-161-063-00 1-162-306-11 | CAP,CERAMIC 0 1M 50V CAP,CERAMIC 0 01M 16V | |
| R806 R807 | 1-249-419-11 1-249-432-11 | RES CARBON FILM 1 5K RES CARBON FILM 18K | | C609 | 1-161-063-00 | CAP,CERAMIC 0 1M 50V | |
| R808 R809 | 1-249-439-11 1-249-431-11 | RES CARBON FILM 68K RES CARBON FILM 15K | | C610 C611 | 1-162-199-31 1-162-306-11 | CAP,CERAMIC 10P 50V CAP,CERAMIC 0 01M 16V | |
| R810 | 1-249-411-11 | RES CARBON FILM 330 | | C612 | 1-136-157-00 | CAP,CERAMIC 0 022M 25V | |
| R811 R812 | 1-249-429-11 1-249-430-11 | RES CARBON FILM 10K RES CARBON FILM 12K | | C613 C614 | 1-124-892-11 1-162-213-31 | CAP, ELECT 47M 6 3V CAP, CERAMIC 39P 50V | |
| R813 R814 | 1-249-431-11 1-249-426-11 | RES CARBON FILM 15K RES CARBON FILM 5 6K | | C615 C616 | 1-162-306-11 9-909-007-01 | CAP,CERAMIC 0 01M 16V CAP,CERAMIC 68P 50V | |
| R815 | 1-249-413-11 | RES CARBON FILM 470 | | C617 | 1-162-288-11 | CAP.CERAMIC 330P 50V | |
| R816 R819 | 1-249-407-11 1-249-435-11 | RES CARBON FILM 150 RES CARBON FILM 33K | | C618 | 1-162-306-11 1-162-306-11 | CAP,CERAMIC 0 01M 16V CAP,CERAMIC 0 01M 16V | |
| R820 R822 | 1-249-425-11 1-249-433-11 | RES CARBON FILM 4 7K RES CARBON FILM 22K | | C620 | 1-124-903-11 | CAP,ELECT 1 0M 50V | |
| R823 | 1-249-437-11 | RES CARBON FILM 47K | | C621 | 1-124-892-11 | CAP,ELECT 47M 6 3V | |
| R824 R829 | 1-249-429-11 1-247-429-11 | RES CARBON FILM 10K RES CARBON FILM 10K | | C622 C626 | 1-136-157-00 1-162-286-31 | CAP,CERAMIC 0 022M 25V CAP,CERAMIC 220P 50V | |
| R844 R847 | 1-249-429-11 1-249-409-11 | RES CARBON FILM 10K RES CARBON FILM 220 | | C627 C630 | 1-162-306-11 1-161-097-00 | CAP,CERAMIC 0 01M 16V CAP,CERAMIC 0 047M 50V | |
| R848 | 1-249-409-11 | RES CARBON FILM 220 | | C631 | 1-161-097-00 | CAP,CERAMIC 0 047M 50V | |
| R849 R850 | 1-249-409-11 1-249-409-11 | RES CARBON FILM 220 RES CARBON FILM 220 | | C635 | 9-909-014-01 1-162-306-11 | CAP, CERAMIC 1000P 50V CAP, CERAMIC 0 01M 16V | |
| R851 R852 | 1-249-417-11 1-249-417-11 | RES CARBON FILM 1 0K RES CARBON FILM 1 0K | | C637 | 1-162-286-31 | CAP,CERAMIC 220P 50V | |
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| | . 241 | | | | | | |
| VR201 VR301 | 1-241-767-21 1-241-763-11 | RES,ADJ CERMENT 100K RES,ADJ CERMENT 4 7K | | | | | |
| VR302 VR303 | 1-241-765-11 9-909-009-01 | RES,ADJ CERMENT 22K RESISTOR,VR 10K | | l I | | | |
| VR304 | 1-241-765-11 | RES,ADJ CERMENT 22K | | 1 1 | | | |
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| L601 | 1-410-669-31 | INDUCTOR 33MH | | LD902 LD903 | 9-909-885-01 9-909-885-01 | DIODE,LED SO3511 RED DIODE,LED SO3511 RED | |
| L602 | 1-408-418-00 | INDUCTOR 56MH | | 1 | | | |
| L603 L604 | 1-410-663-31 1-408-421-00 | INDUCTOR 10MH INDUCTOR 100MH | | LD904 LD905 | 9-909-885-01 9-909-488-01 | DIODE,LED SO3511 RED DIODE,LED SO3511 ORANGE | |
| L605 | 1-410-677-31 | INDUCTOR 180MH | | LD906 ZD901 | 9-909-488-01 8-719-109-89 | DIODE,LED SO3511 ORANGE DIODE MTZ5 6C | |
| L606 | 1-408-421-00 | INDUCTOR 100MH | | <i>L</i> D901 | 0-/19-105-05 | | |
| L610 L611 | 1-412-544-11 1-410-682-31 | INDUCTOR 390MH INDUCTOR 470MH | | ! | | <resistor></resistor> | |
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| Q602 | 8-729-230-79 | TRANSISTOR 2SC1815-GR | | 1 | | | |
| Q603 Q604 | 8-729-230-79 8-729-230-79 | TRANSISTOR 2SC1815-GR TRANSISTOR 2SC1815-GR | | R906 R907 | 1-249-413-11 1-249-432-11 | RES CARBON FILM 470 RES CARBON FILM 18K | |
| Q605 | 8-729-230-79 | TRANSISTOR 2SC1815-GR | | R908 | 1-249-427-11 | RES CARBON FILM 6 8K RES CARBON FILM 3 3K | |
| Q630 | 8-729-230-79 | TRANSISTOR 2SC1815-GR | | R909 R910 | 1-249-423-11 1-249-420-11 | RES CARBON FILM 3 3K RES CARBON FILM 1 8K | |
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| R603 | 1-249-433-11 | RES CARBON FILM 22K | | R915 | 1-249-427-11 | RES CARBON FILM 6 8K | |
| R604 R605 | 1-249-424-11 1-249-417-11 | RES CARBON FILM 3 9K RES CARBON FILM 1 0K | | R916 | 1-249-423-11 | RES CARBON FILM 3 3K | |
| R606 | 1-249-421-11 | RES CARBON FILM 2 2K | | R917 R918 | 1-249-420-11 1-249-418-11 | RES CARBON FILM 1 8K RES CARBON FILM 1 2K | |
| R607 | 1-249-421-11 | RES CARBON FILM 2 2K | | R919 | 1-249-416-11 | RES.CARBON FILM 820 | |
| R608 R609 | 1-249-412-11 1-249-412-11 | RES CARBON FILM 390 RES CARBON FILM 390 | | R920 | 1-249-415-11 | RES CARBON FILM 680 | |
| R610 | 1-249-418-11 | RES CARBON FILM 1 2K | | R921 | 1-249-429-11 | RES CARBON FILM 10K | |
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| R614 R615 | 1-249-416-11 1-249-411-11 | RES CARBON FILM 820 RES CARBON FILM 330 | | SW902 SW903 | 9-909-017-01 9-909-017-01 | SWITCH SKHV10910A SWITCH SKHV10910A | |
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| R616 R617 | 1-249-418-11 1-249-427-11 | RES CARBON FILM 1 2K RES CARBON FILM 6 8K | | SW905 | 9-909-017-01 | SWITCH SKHV10910A | |
| R618 R619 | 1-249-435-11 1-249-429-11 | RES CARBON FILM 33K RES CARBON FILM 10K | | SW906 SW907 | 9-909-017-01 9-909-017-01 | SWITCH SKHV10910A SWITCH SKHV10910A | |
| R620 | 1-249-424-11 | RES CARBON FILM 3 9K | | SW908 | 9-909-017-01 | SWITCH SKHV10910A | |
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| R624 R625 | 1-249-421-11 1-249-419-11 | RES CARBON FILM 2 2K RES CARBON FILM 1 5K | | SW912 | 9-909-017-01 | SWITCH SKHV10910A | |
| R630 | 1-249-421-11 | RES CARBON FILM 2 2K | | SW913 SW914 | 9-909-017-01 9-909-017-01 | SWITCH SKHV10910A SWITCH SKHV10910A | |
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| R632 R633 | 1-249-417-11 1-249-416-11 | RES CARBON FILM 1 0K RES CARBON FILM 820 | | SW916 | 9-909-017-01 | SWITCH SKHV10910A | |
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| C901 C903 | 1-104-665-11 9-909-014-01 | CAP,ELECT 100M 10V CAP,CERAMIC 1000P 50V | | | | <capacitor></capacitor> | |
| C904 | 9-909-014-01 | CAP, CERAMIC 1000P 50V | | C771 | 1-126-967-11 | CAP,ELECT 47MF/16V | |
| | | | | C772 | 1-162-306-11 | CAP,CERAMIC 0 01MF/16V | |
| | | | | C773 | 1-162-306-11 1-126-967-11 | CAP,CERAMIC 0 01MF/16V CAP,ELECT 47MF/16V | |
| | | | | C775 | 1-162-306-11 | CAP,CERAMIC 0 01MF/16V | |
| | | | | C776 | 1-126-967-11 | CAP,ELECT 47MF/16V | |
| | | | | C777 | 1-162-306-11 | CAP,CERAMIC 0 01MF/16V | |
| | | | | • | | | |

KV-13VM20/20VM20 RM-Y126

| REFNO | PART NO | DESCRIPTION | REMARK | REFNO | PART NO | DESCRIPTION | REMARK |
|-------|--------------|-----------------------------------|--------|-------|---------|-------------|--------|
| C778 | 1-126-967-11 | CAPELECT 47MF/16V | | į | | | |
| C779 | 1-126-964-11 | CAPELECT 10MF/16V | | į | | | |
| C780 | 1-126-964-11 | CAPELECT 10MF/16V | | i | | | |
| C781 | 1-126-964-11 | CAP,ELECT 10MF/16V | | 1 | | | |
| C789 | 1-126-967-11 | CAP,ELECT 47MF/16V | | 1 | | | |
| | | <diode></diode> | | | | | |
| | | <diode></diode> | | - | | | |
| L771 | 1-408-421-00 | MICRO INDUCTOR 100MH | | | | | |
| L772 | 1-408-421-00 | MICRO INDUCTOR 100MH | | į | | | |
| L773 | 1-408-421-00 | MICRO INDUCTOR 100MH | | i | | | |
| L774 | 1-408-421-00 | MICRO INDUCTOR 100MH | | 1 | | | |
| ZD771 | 8-719-921-89 | DIODE MTZ13C | | İ | | | |
| | | | | 1 | | | |
| ZD772 | 8-719-921-89 | DIODE MTZ13C | | į | | | |
| ZD773 | 8-719-921-89 | DIODE MTZ13C | | i | | | |
| ZD774 | 8-719-921-89 | DIODE MTZ13C | | 1 | | | |
| | | <connector></connector> | | | | | |
| | | | | 1 | | | |
| CN770 | 9-909-875-01 | CONNECTOR, WAFER FAU0640-08 | | 1 | | | |
| CN771 | 9-909-875-01 | CONNECTOR, WAFER FAU0640-08 | | 1 | | | |
| | | <ic></ic> | | 1 | | | |
| | | | | 1 | | | |
| IC771 | 9-933-738-01 | IC,MC14577CF 8D | | 1 | | | |
| IC772 | 9-908-544-01 | IC,GL3816 | | 1 | | | |
| IC773 | 9-908-544-01 | IC,GL3816 | | į | | | |
| IC774 | 9-908-544-01 | IC,GL3816 | | | | | |
| | | <resistor></resistor> | | | | | |
| | | | | į | | • | |
| R771 | 0RD1001F608 | 1-249-417-11 RES,CARBON(SMALL) 1K | | İ | | | |
| R772 | 0RD1001F608 | 1-249-417-11 RES,CARBON(SMALL) 1K | | 1 | | | |
| | | | | 1 | | | |

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KV-13VM20/20VM20 RM-Y126